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OF THE

# STATISTICAL SOCIETY

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VOL. XXVI.—YEAR 1863.

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MARCH, 1863.

*On the STATISTICS of TONNAGE during the FIRST DECADE under the  
NAVIGATION LAW of 1849. By JOHN GLOVER, Esq., F.S.S.*

[Read before the Statistical Society, 17th June, 1862.]

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I.—*Introduction.*

IN 1849 the Legislature passed the Act 12 and 13 Vict., c. 29, commonly called the Navigation Laws Repeal Bill, but which may be more accurately described as the law which repealed sundry customs' regulations imposing higher duties on certain goods when imported in any other than British ships, or ships of the same country as the produce. No public clamour or interest urged the passing of this Bill. No torrent of public opinion, such as forced the corn law repeal, made this other and later repeal irresistible. The records of the time, however, show how hotly its passage through Parliament was contested; and that both as to its policy and results there was great difference of opinion. The origin of the measure was peculiar. To secure the speedy passage of an important public Bill through Parliament, it is not, generally speaking, enough to show that there are weighty abstract reasons why it should pass—such as that its principles had been already affirmed in some previous measure, the enactment of which had produced a sort of logical necessity for a further step in the same direction, in order to avoid the appearance of Parliamentary inconsistency. Parliament is not usually moved by appeals of this nature, either to its consistency or inconsistency, but wisely, as it seems to us, it clings to practical, rather than theoretical, necessities; and only accepts theoretical service after it has decided for manifest practical reasons to take some action. In the instance before us, however, its conduct was exceptional.

In 1849 there was no scarcity of tonnage either British or Foreign, nor the most remote prospect of such a calamity; but the Navigation Laws were then suddenly repealed because recent enactments had undermined their basis and left them only as an inconsistent legislative fact. Hence, when freedom of tonnage was once proposed as the natural corollary to freedom of trade, it could not be successfully opposed because the legislature was so deeply committed to the underlying principle; and hence also its enactment without the usual Parliamentary justification, and without such reservations as to the time and the mode and the rapidity with which its new principles should be applied. It could not be, however, that an interest so old and so extensive, and one which had so long enjoyed the protection of the State, should suddenly have this protection withdrawn, without great fear being entertained for the consequences. So natural is it for dependence to become ever more dependent, and to think of all its good as having come through the channel that is about to close. But the question has at last emerged from the stormy atmosphere of prediction into the calmer region of fact, and can now be examined in the completed statistics of a decade perhaps the most remarkable in the trading history of any country. Its stupendous facts could scarcely be believed but for the unimpeachable public statistics in which they lie recorded, and in which, strange to say, both the advocates and the opponents of the legislation of 1849 think that they find now a justification for what was done then. In the greatly increased tonnage supply the advocates of the measure find their justification, seeing how largely it was required by the trade of the decade; while on the other hand the opponents find their justification in the unprecedented increase of foreign tonnage in the trade of the United Kingdom; in the continued refusal of the same liberty of tonnage to our flag by many foreign states, and in the cheapening of freight so far below remunerative prices as to have occasioned the necessity for a Parliamentary inquiry on the subject, and to have left the British shipping interest in a condition of great depression at the end of the most brilliant decade of British trade, a period which should have been equally favourable for British tonnage. The increase of foreign tonnage, as we shall see, far exceeded what either the most ardent advocate or the most violent opponent of the measure could ever have imagined, and has now a complete statistical verification. For this vast increase of tonnage, the increasing trade always provided a market, though of what sort these figures do not show.\* In most cases of great trade development the national gain has quickly

\* A demonstration could be obtained only by an examination of the freight statistics for the decade; but an accurate impression of the unprofitable nature of shipping business during its latter years, may be gained from the evidence given before the Select Committee, and from their report.



re-acted upon the loss sustained by particular interests through legislative changes, and made these interests stronger through the suffering they have endured: and if such a result has not accrued in this case in spite of the enormous development that has occurred since the change in the law, we submit that it may be wise to ask whether, while right in its abstract principle, the legislation of 1849 was equally right in the time, and the rate, and the mode of its application.

In selecting for review the period 1850-60,—the first year is chosen as furnishing an exact representation of the position of our shipping when the new law came into operation—and the last year—as being sufficiently distant to show in sharp contrast whatever changes the law had produced. I have only to add before proceeding to consider the figures, that there are three points from which the tonnage question is regarded, viz.,—that of the shipowners,—that of the consumers,—and that of the nation. Just conclusions are most likely to be attained by observation of the following figures from all these different stand-points—not from any one of the three.

II.—Comparisons of Total Entries and Clearances.

The first table to which I invite attention is for the purpose of making an absolute comparison between the totals of 1850 and those of 1860.

TABLE I.—Showing the Total Amount of Tonnage Entered and Cleared in 1850 and 1860 with Cargoes and Ballast.

	Tons.
1850 .....	14,505,064
'60 .....	24,689,292
Increase, tons .....	10,184,228
„ per cent. ....	70·21
„ „ between 1840–50 .....	53·67
„ „ „ '30–40 .....	62·76
„ „ „ '20–30 .....	9·89

It will be readily acknowledged that an increase of more than 70 per cent. in ten years in our total tonnage movement is suggestive of questions numerous enough to justify the inquiry on which we are now entering. This will, however, be still more apparent when we now show by Table II that the increase of tonnage actually employed was 73·35 per cent.

TABLE II.—*Showing the Total Amount of Tonnage Entered and Cleared in 1850 and 1860 with Cargoes only.*

	Tons.
1850 .....	12,020,674
'60 .....	20,837,918
Increase .....	8,817,244
„ per cent. ....	73·35

The increase with cargoes only, being greater than that with cargoes and ballast, it follows that there was more constancy in the tonnage demand both outward and homeward, and that in proportion to the total increase, fewer vessels had to make voyages in ballast, seeking for cargoes to carry.

This increase of 73 per cent. in the decade 1850-60, is so large and satisfactory, that at first sight it might seem needless to ask any further questions. It is indeed a grand march of millions—advancing from *five millions* in 1830, to *nine millions* in 1840, then to *fourteen millions* in 1850, and in 1860 attaining the wonderful climax of *twenty-four millions*. But besides gross totals the records tell us of what flags and in what proportions these totals are composed, and in so vast a development, especially as it occurred under a new law, the important question immediately arises—has the development been general and equal?

### III.—*British Tonnage Comparisons.*

We therefore proceed to a second comparison, showing the amount of British tonnage in 1850, compared with the same in 1860:—

TABLE III.—*Showing the Amount of British Tonnage Entered and Cleared in 1850 and 1860, with Cargoes only, and with Cargoes and Ballast.*

	With Cargoes only.	With Cargoes and Ballast.
	Tons.	Tons.
1850 .....	8,039,308	9,442,544
'60 .....	12,119,454	13,914,923
Increase .....	4,080,146	4,472,379
„ per cent. ....	50·75	47·36
„ „ between 1850-40	—	45·48
„ „ „ '40-30	—	51·65
1830-20 .....	—	A small decrease.

From Table III, it appears that the increase of British tonnage entered and cleared with cargoes during the decade, was 50·75 per cent., and including ballast vessels in the comparison 47·36 per cent.



The rate of increase during the previous decade having been 45·48 per cent., it must be considered that this is satisfactory; largely to increase during three decades, *and to sustain the rate of increase on the ever enlarging area*, indicates marvellous activity and life.

There is, however, another analysis of the British entries and clearances, which should be specially mentioned, viz., that of steam tonnage.

TABLE IV.—*Showing the Amount of Steam Tonnage Entered and Cleared in 1850 and 1860.*

	Tons.
1850 .....	2,209,847
'60 .....	4,967,573
Increase.....	2,757,726
,, per cent. ....	124·80

All this, however, is not strictly trade increase. Postal subsidies exercise, without doubt, an important influence on these figures; yet the fact remains—subject only to some qualification on this account—that while Table III shows so large a general increase as 50·75 per cent., Table IV shows that in the special item of steam tonnage on which all the near trades are ever becoming more dependent, the increase was no less than 124·80 per cent.

The amount of shipping built in any particular year, does not furnish certain data from which to test in an inquiry like this, for it may be greatly impeded by strikes, or greatly stimulated by unusual cheapness of material and labour. Table V, however, shows the comparison between 1850 and 1860 in this respect, distinguishing steamers from sailing vessels.

TABLE V.—*Showing the Number, Tonnage, and Average Size of Sailing and Steam Vessels Built in 1850 and 1860.*

	Sailing Vessels.			Steam Vessels.		
	Number.	Average Size.	Tons.	Number.	Average Size.	Tons.
1850 .....	621	Tons. 191	119,111	68	214	14,584
'60 .....	818	193	158,172	198	271	53,796
Increase.....	197	2	39,061	130	57	39,212
,, per cent.	31	1	32	191	26	270

The value to be attached to the results of Table V, will be better appreciated after we have shown by Table VI, the registered amount of British tonnage in 1850 and 1860, and in previous decades:—

TABLE VI.—*Showing the Number of Vessels, their Average Size, and Total Registered Tonnage of the United Kingdom and Channel Islands; also the Increase in each Decade from 1810 to 1860, and the degree of Activity in each Decade.*

Year.	Number of Vessels Registered.	Average Size.	Total Tons.	Increase per Cent. in Tonnage.	Degree of Activity.
1810 .....	20,253	109	2,210,661	—	—
'20 .....	21,969	110	2,431,029	9·97	1·84
'30 .....	19,174	114	2,201,592	none	1·94
'40 .....	21,983	123	2,724,107	23·78	2·38
'50 .....	25,138	139	3,504,944	28·66	2·69
'60* .....	27,663	168	4,658,687	32·63	2·77

\* The new mode of measuring ships which came into operation in 1855, has had the effect of making the increase in registered tonnage about 10 per cent. less than the ships since added to the register would have made it, had the former regulations for measurement continued in force to the end of the decade.

It will be observed that Table VI shows that in 1860 compared with 1810, the number of ships was greater, the average size larger, and the degree of activity also greater. The decade 1840-50, exhibits results highly satisfactory both as to increase in number and average size, as well as in activity—results which justify our previous statement, that the Act of 1849 was passed in deference to the abstractions it embodied rather than to any famine of tonnage for which the Act was to provide a remedy; but satisfactory as that decade was, and large as the figures of its increase are, those of the decade 1850-60 surpass it,—and that too precisely in the particulars which most indicate tonnage prosperity,—for it will be observed that whereas the number of ships added to the register in 1840-50 was 3,155, in 1850-60 it was only 2,525; the gain of tonnage which was 780,837 tons in 1840-50 on 3,155 vessels, was 1,153,743 tons in 1850-60 on 2,525 vessels; the decrease in the *number* of vessels was 630, but on this decreased number of vessels, there was a gain of 372,906 tons of carrying power. The third column shows that from 1810 to 1830, very little progress was made in the size of vessels, but thenceforward rapidly, and in the last decade with a ratio double that of any previous period, the average size of our ships has been increasing. The inferences from increasing size are all favourable, viz.:—

1. That employment for tonnage is more steady and concentrated; and that it is to be had in larger bulks.

2. That freight will be thus cheapened in the most satisfactory manner, goods being carried in larger bulks, at less cost to the

consumer, and with more profit to the carrier, so benefiting both parties.

On the fourth and fifth columns of Table VI it is only necessary to add, that from 1810 to 1830, we actually decreased both in the number and tonnage of our ships; but that from 1830 onwards, every decade has witnessed a large increase, the last being the largest of all. It would hardly have been surprising if, after such an augmentation as 28 per cent. in 1840-50, there had been some reaction, but instead of that, 1860 shows both an absolute and relative increase over the unprecedented figures of 1850. The last column of this table indicates the degree in which our registered tonnage was active, by the ratio which it sustains to the total amount of British tonnage entered and cleared. This increased activity is another circumstance by which freight has been cheapened, and both the consumer and shipowner benefited. Neither the time occupied in sailing on any given voyage, nor the time occupied in seeking and finding, in loading and discharging cargoes, nor in idle intervals between voyages, nor in snugly lying up during the more stormy months of winter,—none of these occupy so much time as formerly, and hence, as the last column in this table shows, an ever increasing rate of activity. The whole increase shown, however, is not attributable to these causes. Steamers contribute largely to it, though in considering the influence of steamers on this figure, it must be recollected that a great many of the largest steamers owned and registered here, are not in our ports for years, and do not leave any mark of their movements on the tonnage statistics of the United Kingdom.





occupied in Home Trade and Foreign Trade; also the Average Tonnage of the Steamers.

Steam Vessels.			Total.			
Average Tonnage.	Men.	Number of Men to each 100 Tons.	Vessels.	Tonnage.	Men.	
169 229	4,491 6,416	8·2 6·9	9,150 11,250	721,153 913,333	43,018 45,579	1850 } Home trade 1860 }
60	1,925	1·3 Decrease	2,100	192,180	2,561	Increase
36·	43·	15· Decrease	23·	26·	5·8	,, per cent.
525 620	3,813 17,958	8·4 6·4	7,235 7,323	2,188,420 3,082,047	97,725 115,582	1850 } Foreign trade 1860 }
95 Increase	14,145 Increase	2· Decrease	88 Increase	893,627 Increase	17,857 Increase	
18·	371·	23·8 Decrease	1·2	40·	18·	Increase per cent.
245 430	8,700 26,105	8·3 6·5	17,892 20,019	3,137,212 4,251,739	151,430 171,592	1850 } Total, including 1860 } ships occupied in home and foreign trade
185	17,405	1·8 Decrease	2,127	1,114,527	20,162	Increase
75·	200·	21· Decrease	11·	35·	13·	,, per cent.

also made most satisfactory progress, viz., from 4·3 per 100 tons in 1850, to 3·4 in 1860, being a reduction of 20 per cent., against the reduction of 17 per cent. in the home trade. On the total comparison between sailing vessels in 1850-60, the only observation we make is the contrast shown between the large addition to carrying power, and the small increase of labour by which it is worked,—nearly 900,000 tons of shipping added, and only 2,757 men,—an increase of 27 per cent. to the tonnage, but with less than 2 per cent. increase in the number of men employed.

The changes in steam tonnage employed during the decade, as shown by Table VII, are very remarkable. In the home trade 25 per cent. added to the number, 70 per cent. added to the tonnage, 36 per cent. added to the average size, 43 per cent. added to the total number of men employed, and a reduction of 15 per cent. in the number of men per 100 tons. The extension of steam tonnage in the foreign trade is marvellous; only 86 steamers in 1850, 447 in 1860, an increase of 419 per cent. in number, 515 per cent. in



tonnage, 18 per cent. in average size, 371 per cent. in the number of men employed, and a reduction of 23·8 per cent. in the number of men per 100 tons—8·4 in 1850 against 6·4 per 100 tons in 1860. Comparing the total steam result of the decade with the total result in sailing tonnage, the contrast stands thus:—

	Per Cent.
Sailing vessels increased .....	9
Steam       "       " .....	118
Sailing tonnage increased .....	27
Steam       "       " .....	282
Sailing vessels increased in average size .....	13
Steam       "       "       " .....	75
Sailing vessels furnished employment for additional men to the extent of .....	} 1·8
Steam vessels furnished employment for additional men to the extent of .....	
Sailing vessels decreased the number of men per 100 tons .....	19
Steam       "       "       " .....	21

Two things must be recollected with the above comparison; 1. That the area of the rates per cent. on steam tonnage is very small compared with that on sailing tonnage; and 2. That it is quite possible this steam progress may have been too rapid. The more humble looking figures of sailing tonnage, not enhanced by any "Great Easterns," indicate, perhaps, less zeal and more discretion; yet show such ample provision for trade, such improvement in average size and such economy in labour, as entitle the decade to be most conspicuously marked in the annals of British shipping.

Leaving the distinctions between home and foreign trade, also those between sailing and steam tonnage, the total result of the decade appears to be, that in the United Kingdom trade, there were employed under the British flag in 1860, compared with 1850, 11 per cent. more ships, 35 per cent. more tonnage, and 13 per cent. (or 20,162) more men. It is said that our shipowners are "a grumbling class," which is probably true, considering that they are Englishmen, and that all Englishmen grumble; but these figures show very conclusively, we submit, that grumbling was not their sole occupation during the last decade; that while grumbling, for some good reasons, against the Legislature, they addressed themselves vigorously to the new state of things introduced by the Act of 1849, and with energy equalled only by their successful economical appliances, they contributed their full share towards the supply of that great demand for tonnage which began the decade at *fourteen millions*, and ended it at *twenty-four millions*.

#### IV.—*Foreign Tonnage Comparisons.*

We now come to the statistics of foreign tonnage, which we proposed to examine. It will have been observed, that all the compari-



sons made thus far have been absolute comparisons; only the same thing compared with itself at a subsequent period—these are not usually considered “odious comparisons.” But now we have to institute some relative comparisons which were considered by British shipowners very odious, and on the facts of which much complaint was made to the Legislature, not always in the wisest shape, but with only too much justification in the actual financial condition of British shipping towards the end of the decade.

Perhaps it will enable us to make a more easy and correct appreciation of these relative comparisons if, before instituting them, we examine the extent of foreign tonnage visiting our ports in 1850, and its absolute progress to 1860, and compare this with the progress of previous decades.

TABLE VIII. — *Showing the Tonnage of Foreign Vessels Entered and Cleared with Cargoes and Ballast for each Decade, from 1820 to 1860; also the Increase per Cent., the Proportion per Cent. to Total, and the Proportion per Cent. to British.*

Year.	Tons.	Increase.	Increase per Cent.	Proportion to Total Tonnage Entered and Cleared.	Proportion to British.
1820 .....	799,392	—	—	15·14	17·84
'30 .....	1,517,196	717,804	89·23	26·15	34·40
'40 .....	2,949,182	1,421,986	93·67	31·24	45·42
'50 .....	5,062,520	2,113,338	71·61	34·89	53·61
'60 .....	10,774,369	5,711,849	112·82	43·63	79·58

The above figures relate to entries and clearances both with cargoes and ballast. Comparing the result between 1850 and 1860, with cargoes only, the figures are:—

1850 .....	3,981,366
'60 .....	8,718,464
<hr/>	
4,737,098 or 118·99 increase per cent.	

It is quite evident from Table VIII, that it is not solely due to the Act of 1849 that 43 per cent. of the total entries and clearances in 1860 were foreign vessels. Under the old reciprocity treaties, foreign tonnage in our trade from 1820 to 1850 had made gigantic strides. The absolute increase was 89 per cent. for the decade ending 1830; 93 per cent. for the decade ending 1840; but for the decade immediately preceding the repeal of the navigation laws only 71 per cent. So in like manner its proportion to the total entries and clearances doubled between 1820 and 1840; and its proportion

to British, in the decades from 1820 to 1850, rose from 17 per cent. to 34, then to 45, and in 1850 had reached 53 per cent. These figures and observations show that the law of 1849 was not enacted to admit that which had hitherto been excluded; but what a stimulus the permission to enter into any of our indirect trades, that Act gave to foreign tonnage, is shown by the extent to which the figures of the decade 1850-60 surpass all those which preceded. The 5,063,520 in 1850, became more than 10,774,369 in 1860, an increase of nearly 113 per cent. The proportion to total increased from 34 in 1850, to 43 in 1860; and the proportion to British rose from 53 to 79. Excluding ballast entries and clearances for the 1850-60 decade, the increase is from nearly 3,900,000 tons, to 8,700,000 tons, or 118·99 per cent. Certainly the framers of the Act of 1849 could not have expected an increase of foreign tonnage so vast as this, nor did its opponents venture to predict that the total increase of 71·61 per cent. of the 1840-50 decade, would, under the new law, be succeeded by an increase with cargoes only of 118·99 per cent. in 1850-60. It is also highly significant of the use made by foreign tonnage of the liberty of indirect trade given by the law of 1849, that the increase with cargoes only is greater than with ballast and cargoes. Against the foreign total increase of 112·82 per cent., that with cargo only is 118·99 per cent. Under the direct trade limitations, a large proportion of the foreign tonnage that came to our ports, discharged the cargoes of their own country's produce, and sailed away in ballast; but now they are able to take cargoes for other countries, if their own country cannot buy our goods. This facility of getting employment here, increases the attraction to come here, and in the exact degree in which it does so, tends to cheapen freight. These figures in Table VIII moreover, furnish us with some idea of what the increase in foreign tonnage would have been, had the navigation laws not been repealed. Recollecting that during the decade 1840-50, the increase was two millions of tons, and that the large grain imports of the decade 1850-60, as well as the war with Russia, greatly increased the demand for foreign vessels, recollecting also the large increase in our foreign trade generally, we estimate that 1860 would have seen the foreign entries and clearances increased to about 9,000,000 tons had the navigation laws not been repealed, so that the surplus beyond that quantity, viz., 1,774,369 tons, probably represents the amount that would not have been in competition in or for our markets, but for that Act.

By the following table we shall compare foreign tonnage in 1850 with British tonnage in 1850, and then by an examination of the same facts for 1860, we shall ascertain what precise changes in the relation of the one to the other were accomplished during the first decade under the new law.



TABLE IX showing the Relative Position of Foreign and British Tonnage in 1850 and 1860.

*With Cargoes and Ballast.*

(000's omitted.)

	1850.				1860.			
	Entered.	Proportion to Total.	Cleared.	Proportion to Total.	Entered.	Proportion to Total.	Cleared.	Proportion to Total.
British ....	4,700,	66·19	4,742,	63·51	6,889,	56·19	7,025,	56
Foreign	2,400,	33·81	2,662,	36·49	5,283,	43·81	5,490,	44
	7,100,	100·0	7,404	100·0	12,172,	100·0	12,516,	100

*With Cargoes only.*

	1850.				1860.			
	Entered.	Proportion to Total.	Cleared.	Proportion to Total.	Entered.	Proportion to Total.	Cleared.	Proportion to Total.
British ....	4,078,	66·71	3,960,	66·10	5,760,	57	6,358,	58·90
Foreign	2,035,	33·29	1,946,	33·90	4,294,	43	4,424,	41·10
	6,113,	100·0	5,906,	100·0	10,054,	100	10,782,	100·0

From Table IX we have the following results:—

1. British tonnage was 66·19 per cent. of the total entries inwards in 1850, and fell to 56·19 per cent. in 1860.
2. Foreign tonnage was 33·81 per cent. of the total entries in 1850, and increased to 43·81 per cent. in 1860.
3. Of the total clearances in 1850, British tonnage occupied 63·51 per cent., and in 1860 56 per cent.
4. Of the total clearances in 1850, foreign tonnage occupied 36·49 per cent., and in 1860 44 per cent.

With cargoes only the results are shown rather less unfavourably to British tonnage, viz. :—

1. Of the entries with cargo in 1850, British tonnage occupied 66·71, and in 1860 57 per cent.
2. Of the same in 1850, foreign tonnage occupied 33·29, and in 1860 43 per cent.
3. Of the clearances with cargo in 1850, British tonnage occupied 66·10 per cent., and in 1860 58·90 per cent.
4. Of the same, foreign tonnage occupied in 1850 33·90 per cent., and in 1860 41·10 per cent.



It is interesting to know under what flags, and in what degree under each flag so large an increase of foreign tonnage has occurred. This is shown by Table X.

TABLE X.—*Showing the Increase of Tonnage under each Flag between 1850 and 1860. Vessels with Cargoes only.*

Nationality of Vessels.	Tonnage Entered and Cleared, 1850.	Tonnage Entered and Cleared, 1860.	Increase.	Increase per Cent.
Russian .....	163,254	242,673	79,419	48
Swedish .....	125,649	366,740	241,091	191
Norwegian .....	331,664	948,212	616,548	191
Danish .....	285,263	618,681	333,418	116
Prussian .....	404,401	774,678	370,278	91
Other German States .....	465,587	1,247,571	781,984	167
Holland .....	240,444	539,055	298,611	124
Belgian .....	71,775	131,424	59,649	83
French .....	369,624	880,352	520,728	140
Spanish .....	46,328	133,211	86,883	186
Portuguese .....	19,096	70,077	50,981	263
Italian .....	195,208	295,635	100,427	51
Other European States } chiefly <i>Austrian</i> .....	43,160	370,890	323,730	751
United States .....	1,215,225	2,834,021	1,618,796	133

These are surprising figures. Russia, whose mercantile marine was said to have been entirely destroyed during the war, seems to have reconstructed fast enough to place nearly a quarter of a million tons in our ports during 1860—48 per cent. more than in 1850. Sweden and Norway each add 191 per cent., together an addition of 850,000 tons. Germany increases more than three-quarters of a million—167 per cent.; Holland 124 per cent. Under the heading of other European States, Austria rises from next to nothing in 1850, to more than 300,000 tons, or 751 per cent., nearly the whole of which is in indirect trade, chiefly with Southern Russia. America brings up the rear, making an addition of nearly one million tons above the large increase of Norway—1,618,796 tons, 133 per cent. Of the fourteen flags, only four failed in at least doubling themselves.

#### V.—*Observations on Foreign Tonnage Comparisons.*

No marvel that the decade in which this increase happened, is considered a remarkable one. It must be recollected, however, that these figures do not indicate whether profit or loss was the result of these large operations, although the natural inference is that increase means success. Increase, however, may come through other than trade causes, temporary and exceptional in their nature, fiery and urgent while they last, and ensuring a terrible reaction when they

are over. The British increase, however, was not greater than the increase in the total tonnage movement warranted; and moreover was not much above its rate of increase in previous decades; but we are compelled to mark the foreign increase as unnatural, both in cause and extent. Such a change in the law as was made in 1849 could only furnish increased employment for foreign tonnage by the gradual growth of trade, or by the displacement of the national flag. But the Act of 1849 had such an effect on the production of foreign tonnage throughout all the maritime countries in Europe, that foreign ships for British trade were built in prodigious numbers. The result of this was not immediately felt however. The Californian and Australian gold discoveries increased trade, the Russian war, as already mentioned, occasioned a vast demand both for our vessels as transports, and for foreign vessels as neutral traders; hence the unfavourable effect of this great increase of foreign tonnage was not experienced in the earlier years of the decade. But in its later years, when tonnage had to depend more on ordinary trade for employment, the disadvantage of so vast an increase was fully realised. If our estimate be at all near the mark, that the Act of 1849 made the increase in the decade about 1,700,000 tons more than the expansion of our trade required, this is enough to explain the distressed condition in which the national tonnage found itself, and to confirm the representations which its largest and most respectable owners made to the Parliamentary committee. For such a surplus over the natural supply, and beyond the ordinary trade demands, is just enough to create that preponderance of supply over demand which makes the buyer master of the situation, and excludes all consideration of cost and profit from the selling price. That was precisely the case in the later years of the decade, and as the most proximate cause of bad freight markets was this indiscriminate increase of foreign tonnage under the Act of 1849, loud complaints were made against its operation, and with many other requests, it was especially demanded of the Legislature that the non-reciprocating States should have the retaliatory clauses of that Act put in force against them. But the Legislature had opened a door which it was impossible to shut, and we must acknowledge that had it been easy to put these retaliatory clauses in force, doing so would have been fruitless, so far as any appreciable effect on freight was concerned, unless we had decided to reject the United States definition of "coasting trade," and to have included her flag with those whose liberty of equal entry to our ports was to be cancelled. The other non-reciprocating powers are unworthy of notice as competitors, their exclusion consequently would not have appreciably reduced the supply of tonnage, nor have made bad freights better. Others said, and with much reason too, that in exposing British tonnage to this unrestricted, and in many cases



unreciprocated competition, without *first* liberating it from all the special burdens and disabilities which had resulted from its previously protected state, and somewhat also from the relation which the mercantile marine had always borne to the Royal Navy and the exigencies of national defence—the Legislature had applied free trade principles to shipping in the wrong order, that it should have been made free at home first, *then* exposed to as much competition as either tonnage wants, or abstract principles, or willingness on the part of other nations to reciprocate, rendered wise or expedient. But while still treated as a protected interest at home, by endless restrictions, imposts and liabilities, it was exposed to competition with foreign tonnage which neither was under these burdens nor would, in many cases, reciprocate the liberty of trade which the Act of 1849 conferred. We submit that so dealing with an old and long protected interest in deference to political abstractions, and in the absence of any manifest practical urgency, was unjust both to the special interest and to the abstract principle. For it can hardly be doubted now, that if free trade principles had been first applied at home—where all kinds of charity should begin, and perhaps free trade is the highest form of national charity—in liberating shipping from its antiquated burdens, such an application of the doctrines would have been a fitting preparation for this competition, and have made the shipowning class free traders; then as the sequence of such legislation, a permissive statute granting to any nations that would reciprocate, equality of entrance to our own *liberated ports*, would have constituted an irresistible appeal to all maritime nations to concede to us what our ambassadors and plenipotentiaries have ever since vainly supplicated in France and Spain, in Portugal and Belgium, and with most reason, though perhaps with least success, in the United States of America. But zeal for the rapid application of these just triumphant doctrines, rather than discretion in the order and rate of their application, seems to have characterized the legislation of 1849: hence a decade following of great manifested capacity on the part of our shipping interest, bravely trying to hold its own, but ending in bitter lamentations to the Legislature and vast pecuniary loss; hence also British shipping being obliged to suffer at the same time both the burdens of protection and the competition of free trade, receiving from both the harm they could each do, receiving from neither the good which either by itself might have done; hence, worst of all, the throwing away of an opportunity so golden, an appeal so irresistible, that rightly used might, ere this, have secured freedom of navigation and equality of maritime rights for every flag, in every harbour, and on every sea!



VI.—*Conclusions.*

The following conclusions seem to be indicated by the figures and facts of the decade to which attention has been directed:—

1. That the increase of British trade fully justified the increase of British tonnage which occurred during the decade, so that the depression during its last years cannot be charged to over-production of tonnage on the part of British shipowners.

2. That the increased size of British ships, the increasing economy of labour in their navigation, the greater rapidity in their movements, their increased carrying capacity, and especially the great development of steam tonnage, all show that the obvious means whereby freight might be cheapened with advantage to both carrier and consumer, have been diligently and successfully followed by the British shipowner.

3. That the foreign tonnage increase was exorbitant; not based on trade demand, but on political expectations.

4. That the inevitable effects of this excessive increase of foreign tonnage were counteracted during the first half of the decade by very exceptional demands for tonnage, but became manifest immediately on the cessation of these extraordinary demands.

5. That the power of increase manifested by British tonnage during the decade, and the increase that would have occurred in foreign tonnage under the old reciprocity treaties, had the Act of 1849 not been passed, alike prove that there was no urgent public necessity for such summary and hasty application to shipping of the unquestionably sound principles of free trade; but that time might have been taken, without any national sacrifice, to release shipping from its home burdens, and to negotiate with foreign States for reciprocal concessions to our flag, preparatory to the general measure of tonnage liberation.

6. Lastly, that what ought to have been done prior to the repeal of the navigation laws, and is not yet done, ought not to be longer delayed. We especially refer to the abolition of compulsory pilotage, of light dues, of the ballast monopolies, of stamp duties, and to the oppressive liabilities *imposed on British shipowners alone* in the Passenger Acts.

These conclusions would have been further confirmed had we been able to consider the prices of freight, the rate of sailors' wages, the cost of provisions, also of such articles as rope, canvas, copper, &c., all of which largely affect the profitableness or otherwise of maritime adventure during any given time. In the limits of this paper, however, it was not possible to produce statistics on these questions. But for the singularly striking circumstance of a decade in which the employment for shipping increased *ten million tons*,

ending in such general depression and loss, we think the figures adduced do furnish a "reason why."

With respect to pilotage regulations, light dues, ballast, &c., great changes have been recommended to Parliament in the report of the Select Committee presented in August, 1860, and for the most part still wait for legislative sanction.\* Both by his wrongs and by his rights, the shipowner thinks himself entitled to these reforms. They, too, are natural corollaries of the free trade principles, and having suffered all the injury which a very hasty application of these principles could inflict, the benefits and exemptions which a further application of the same principles would secure are looked for as rights. And we submit, that the importance of the interest as shown by its own figures for 1860, and the increasing severity of the foreign competition as also shown, alike suggest that this home application of the doctrines of free trade ought not to be, and without injustice, cannot be, longer delayed. Anything like a real decrease in our maritime strength would be accepted everywhere as the symbol of national decline, and no possible concessions would be then esteemed too dear to check and avert such a calamity. Is it not better, *now*, to concede to maritime strength what *then* would be so gladly conceded to approaching weakness? and so, not only preserve our present maritime position, but enable this great national interest, strengthened in and through its sufferings, to retain the proud supremacy of our flag!

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\* During last session of Parliament a Bill was passed containing clauses intended to effect the gradual abolition of compulsory pilotage.

ENDOWED EDUCATION, *and* OXFORD *and* CAMBRIDGE COLLEGE  
FELLOWSHIPS. *By* JAMES HEYWOOD, M.A., F.R.S.

[Read before Section (F), of the British Association, at Cambridge,  
October, 1862.]

NUMEROUS accounts of local charities are sent in, from time to time, to the Charity Commissioners of England and Wales. In 1860, there were 13,929 accounts of charities sent in to the Commissioners, and in 1861 the number of these accounts submitted to them increased to 17,594.

Direct relief in the administration of charities may be afforded by the Commissioners under the Charities Act of 1860, in all cases where the trustees apply to the Commission, and the charge in such cases is inconsiderable on the charity funds.

This facility of obtaining relief in the administration of charities, has occasioned a diminution of applications to judicial courts on the part of trustees of charities. In 1860 there were, in charity cases, under the Commission—

	75	applications to the Court of Chancery
143	„	to county courts,
<hr/>		
218		to judicial courts
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Whilst in 1861 there were, in charity cases under the Commission, only—

	32	applications to the Court of Chancery
7	„	to county courts
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39	„	to judicial courts
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Special applications are requisite to obtain the valuable aid of the Charity Commission, and the Commissioners do not possess the power to initiate proceedings in any charities whether connected with physical relief, or the formation of habits of industry and providence, or in charities which are available for educational purposes. It is not the custom of the Charity Commission to inquire into the nature and system of education in the charities under their control, with a view to the improvement of plans of public instruction.

A general digest of the value and purposes of charities, whose accounts have been submitted to the Commission, is in progress, in



which a summary of the information obtained for several counties and important districts will be arranged and condensed under the care of the Commissioners.

Some central authority possessing the power of periodically visiting and inspecting endowed educational institutions, would be of importance to determine the best means of improving educational endowments.

An extension of the powers of the Committee of Privy Council on Education, would facilitate such an inspection of endowed educational institutions, and the recent Royal Commission on Popular Education, under the presidency of the Duke of Newcastle, has reported in favour of a transference of the powers of the Charity Commission to the Committee of Privy Council on Education: the circumstance of the president of that committee being a peer, and the vice-president a member of the House of Commons, would secure ready access to each house of Parliament, in favour of maturely considered measures of amelioration.

Inspection of endowed grammar schools, under the care of the Committee of Council on Education, was particularly recommended by the Royal Commission on Popular Education, but the visitation of grammar schools alone does not provide a sufficient remedy for the unsatisfactory routine of education often kept up in those institutions.

When the British Association for the Advancement of Science met at Cheltenham some years ago, the writer of this paper asked the Rev. Dr. Dobson, head master of Cheltenham College if more science could not be introduced into the Cheltenham College system? In reply, the head master mentioned, that it was the general wish of the parents who sent boys to the college at Cheltenham, that their sons should have that instruction which would enable them to obtain scholarships and fellowships at Oxford and Cambridge. Dr. Dobson was of opinion that an alteration should first be made in the requirements for scholarships and fellowships, before changes could be effected in the public school system.

Since that time, competitive examinations for the Indian Civil Service, for the Engineers and Artillery at Woolwich, as well as for the Foreign Office, and for situations in foreign embassies, have given a new impulse to the study of modern languages and modern science.

A Royal Commission, presided over by the Earl of Clarendon, has been appointed to inquire into the state of the largest and most richly endowed English public schools.

A wide spread spirit of discontent is observable at the present day, with reference to the continuance of plans which in several cases limit public school education principally to Greek and Latin.

Sir Charles Lyell noticed in his evidence, presented to the Oxford

University Royal Commission, in 1850-1, that he was acquainted with a school containing seventy boys, in which five boys were annually prepared for either Oxford or Cambridge, and that the system of education for the remaining sixty-five boys was conducted in the same manner, principally on classical subjects, which the masters deemed expedient for the small minority intended to proceed to one or other of the ancient English universities. The attractions of the pecuniary rewards of scholarships, fellowships, &c., are so powerful, that, in fact, the subjects of examination for these emoluments control nearly the whole of the higher educational system of the country.

Lord Brougham, in recently addressing the members of the Scarborough Mechanics' Institute, observed, that when a great and renowned King of Sparta, Agesilaus, was asked "What ought boys' to be taught," he answered, "Teach them that which they are likely to find will be of most service to them when they are grown older."

College statutes at Oxford and Cambridge, have, under the university acts of Parliament of 1854 and 1856, been already in some degree revised, but the subjects of examination for scholarships and fellowships have been very seldom modified.

A long career of school and college education may be considered to terminate at 22 or 23 years of age, and a college fellowship of 200*l.* a-year, tenable for about ten years, may be regarded as the principal reward of successful scholastic study at that period of life.

Let us inquire into the subjects of examination, to prepare for which, the intellectual labours of probably fourteen years of youth have been devoted, and which are exemplified in the annual examination papers for the fellowships of Trinity College, Cambridge.

For five days the Trinity College fellowship examination is continued at Cambridge, and the examination papers in 1861 were given to the candidates in the following order:—

#### *First Day.*

9—12. Greek prose to be translated into English; passages from Plato, Lysias, Theophrastus, and Polybius.

1—4. Greek poetry, including passages from Homer, Euripides, Apollonius of Rhodes, to be translated into English prose, and some lines from the Greek anthology, to be rendered into English verse.

#### *Second Day.*

9—12½. Latin prose and Latin poetry, comprising passages from Cicero, Livy, Plautus, and Propertius to be translated into English.



*Third Day.*

9—1. Mathematical questions, in geometry, algebra, trigonometry, mechanics, dynamics, optics, hydrostatics, and astronomy.

2—4. A passage of English prose to be translated into Latin prose.

*Fourth Day.*

9—12. Logic, questions on the philosophy of Plato, Aristotle, and Cicero, the ancient and modern views of mental and moral philosophy, the writings of Locke on the human understanding, the sermons of Butler relating to human nature, the economical tenets of Paley, Bentham, Mill, &c., with questions on constitutional law, and on the meaning of words.

1—4. High mathematics, involving abstruse calculations and difficult investigations.

*Fifth Day.*

In the morning :

A passage of Latin prose to be translated into Greek prose.

A portion of English tragic poetry to be rendered into Greek iambs.

In the afternoon, 1—3 :

Greek verses, from Epicharmus, to be translated into English.

Short Greek fragments to be translated.

Questions on Greek plays and the early Athenian constitution.

Greek epigrams, proverbs, and phrases to be translated.

Greek verses to be corrected.

Derivations and original meaning of numerous Latin terms.

Criticism of the military conduct of certain Roman military leaders in the second Punic war.

Constitutional changes in the Roman republic.

Roman views of their own relation towards Italy and the rest of the world, after the first and second Punic wars, and the second and third Macedonian wars.

Sketch required of Latin literature, from B.C. 253, to B.C. 153

Places of the following eight letters:—C, F, G, H, Q, X, Y, Z, in the Latin alphabet, to be accounted for.

Original identity of certain Latin and Greek words to be proved.

At Oxford, college fellowships are usually bestowed exclusively as the rewards of success in the classical examination for honours at the time of the bachelor of arts degree, and Latin composition is constantly required in all the colleges of Oxford. Students who obtain college scholarships, are expected to keep up their classical



reading, as undergraduates, and to become candidates for honours in Greek and Latin subjects on taking their B.A. degree.

The addition of a new general university examination, called "Moderations," at Oxford, has had the effect of introducing a fresh university test of classical acquirements in that ancient seat of learning for undergraduates.

Fortunately, the excessive devotion of time, for three consecutive years, at Oxford, to classical pursuits, is found inconvenient with reference to a suitable preparation of candidates for the ministry in the Church of England; and a desire is manifest to diminish the period of general studies to two years instead of three years at the ancient universities.

In July, 1862, a paper was read at the Church Congress in Oxford, by Dr. Ellicott, Bishop of Gloucester, recommending a reduction of the general course of reading for undergraduates at the ancient English universities, to two years.

The Bishop of Gloucester advised the institution of a theological examination for divinity students, at the end of the third year of academical residence, suggesting, in his proposal, a year of professional study after two years of preparation for the degree of Bachelor of Arts.

For a large majority of the students who are preparing for the ministry in the Church of England, such an arrangement would be highly advantageous, and it is already partially anticipated, as professional lectures on divinity are frequently attended in the third year of residence; and various subjects are set for the third year examinations, both in the colleges and for the ordinary B.A. degree in the university, which are similar to those required in the ordination examinations of the Church of England.

During the first two years of undergraduate residence at Oxford and Cambridge, secular and general subjects usually occupy the attention of students, with which the degree of Bachelor of Arts would be naturally connected.

A separate examination would become requisite for college fellowships, as the high amount of reading expected for the B.A. degree with honours, at the end of three years of study, could not under existing circumstances be expected at the end of two years.

College fellowship examinations govern, in a large measure, the whole system of higher endowed education in England and Wales. Schoolmasters are frequently selected for the largest grammar schools from the class of college fellows. When installed into the chair of office, it is their highest ambition that their pupils should succeed in obtaining college scholarships and fellowships at Oxford and Cambridge.

Years of preparation in the art of composing Latin and Greek

verses, and in turning English prose into either Greek or Latin, are usually requisite for success in classical fellowship examinations. We know, however, of one case, where a highly accomplished classical student at Trinity College, Cambridge, succeeded without Latin and Greek verses, in obtaining a fellowship. Mr. Edward H. Bunbury was advised by his tutor, that as he had not been educated at a public school, he could not compete with public school men in Greek and Latin versification, and that he would utilise his exertions by devoting himself to prose composition in the ancient languages of Greece and Rome. The advice so given, was followed, and led to a successful result.

Dean Peacock, formerly fellow and tutor of Trinity College, Cambridge, strenuously urged the abolition of exercises in Latin and Greek versification in academical examinations, on account of the time necessary to acquire the art of making verses in dead languages, and the speedy loss of facility in composing such verses, when the practice of writing them had ceased for some years.

In ordinary grammar schools, the art of good handwriting is often spoiled by an incessant scribbling of bad Latin and Greek verses. In the great school at Eton, some years ago there were only about 15 masters for 770 boys, or hardly 1 master for 50 boys, and the present proportion does not exceed 27 masters to 800 boys; this paucity of superintendence may perhaps be the result of the ancient system of exercises in the composition of Latin and Greek verses forming a large portion of the work assigned to the pupils, and occupying many hours of time for the boys, whilst verses require a comparatively short time for revision and correction by the masters.

An authorized inspection of the higher system of endowed education, can only be carried out by the Committee of Privy Council on Education, as the head of public instruction in this country; and an extension of the powers of that body, so as to include endowed educational institutions under their superintendence, would be of national importance.

Scientific professors are, in general, not sufficiently remunerated at Oxford and Cambridge, and as there are about 500 or 600 college fellowships in the two ancient universities, of which at least 50 or 60 fellowships become vacant every year; the transference of a larger portion of these emoluments when vacant, for the endowment of professorships in modern subjects, may be considered.

It is remarkable that one of the principal results of endowed education for young men, should be the maintenance of a system of composition in Greek and Latin verses, which is almost entirely useless, in the majority of instances, after the age of 22 or 23, and that education for young ladies, which has never received the patronizing assistance of rich endowments, should include in a well

managed school, instruction in the modern languages of French, German, and Italian, lessons in English grammar, and belles-lettres, as well as in the elegant accomplishments of music, singing, and drawing.

Let the counsel of the ancient Spartan monarch, recently reiterated by Lord Brougham, be followed in the system of endowed education, that the students may be taught what they are likely to find will be of most service to them when they arrive at a man's nature.

In the examinations for college fellowships at Oxford and Cambridge, exercises in the composition of Latin and Greek verses should no longer be set, and an alternative should be allowed between prose composition in Latin and Greek, and translations from English into French and German.

English history and English composition should be regarded, and science encouraged, by the bestowal of suitable collegiate rewards on their most distinguished votaries.

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*On the COTTON TRADE and MANUFACTURE, as affected by the CIVIL WAR in AMERICA. By LEONE LEVI, ESQ., F.S.A., F.S.S., of Lincoln's Inn, Barrister-at-Law, Doctor of Economical and Political Sciences of the University of Tübingen, and Professor of the Principles and Practice of Commerce in King's College, London.*

[Read before the Statistical Society, 20th January, 1863.]

No district of the United Kingdom exhibits more conspicuously the great phenomena of British industry, or the great secret of British wealth, than that which has become, alas, so prominent for its sufferings and privations. The theme suggested by this great hive of industry, may indeed engage our deepest thought and reflection. There coal and iron supersede turf and corn, which render the aspect of the country as dingy as the entrance of hades. Illumined factories with more windows than Italian palaces, and smoking chimneys taller than Egyptian obelisks constitute the glories of the district. Everywhere you find monuments of indomitable energy. All you see indicates the march of modern progress. Enter for a moment one of those numerous factories; behold the ranks of thousand operatives all steadily working; behold how every minute of time, every yard of space, every practised eye, every dexterous finger, every inventive mind, is at high-pressure service. There are no lumber attics nor lumber cellars; everything is cut out for its work and the work for it. And what could be more wonderful than those factories for the manufacture of machines. Listen to the deafening din. What power has mind over matter! What metamorphosis can human industry perform; and how much has this mighty agent changed the entire character of Lancashire. See how thickly it is filled with cities and towns. In Northumberland there are 208,000 square miles for each town. In Lancashire only 26,000. And how close the inhabitants. In Westmorland there are 19 square miles for each inhabitant. In Lancashire 0·97 only. One hundred years ago Manchester had only 1,600 inhabitants; now with Salford she has more than 450,000 people.\* Three hundred years ago Liverpool was only a fishing hamlet with 138 inhabitants; now she has also 450,000. The entire county of Lancashire, in 1692, was returned for the

\* The increase of population in the county of Lancaster was strikingly demonstrated in the last census for 1861. Except in the two mining counties of Durham and Monmouthshire, where the increase has been even greater, the rate of increase

land tax at a value of 97,000*l.*; in 1860 she was assessed to the property tax at a value of 11,500,000*l.* Whence this magic increase? Principally from the cotton trade and manufacture.

It is in Manchester, too, that the steam Hercules whose power dwarfs the fabled feats of the Grecian prodigy, first exhibited his youthful strength, grew up in vigour and skill, and still manifests his gigantic maturity. This system of industry is comparatively of modern creation—history throws but little light upon its nature, for it has scarcely begun to recognise its existence; and the philosophy of the schools supplies scarcely any help for estimating its results, because an innovating power of such immense force could never have been anticipated. The steam-engine had no precedent, the tall and ever-smoking chimneys had no parallel in times past, the spinning jenny is without ancestry, and the mule and power loom entered in no recognised heritage. There they are even in their present temporary prostration—an overflowing stream of opulence and power, a wonder to ourselves, the envy of the world.

in Lancashire during the last sixty years has been larger than in any other county in England.

Years.	Population.	Percentage increase between the Censuses.
1801 .....	673,486	—
'11 .....	829,499	22
'21 .....	1,052,948	27
'31 .....	1,330,854	27
'41 .....	1,667,054	24
'51 .....	2,031,236	22
'61 .....	2,429,440	20
Total increase in } 60 years .....	—	261

Counties.	Rate of Increase in 60 Years.	Counties.	Rate of Increase in 60 Years.	Counties.	Rate of Increase in 60 Years.
Stafford .....	208	Worcester .....	110	Huntingdon .....	71
Surrey .....	210	Nottingham .....	109	Somerset .....	63
Middlesex .....	170	Northumberland .....	104	Berkshire .....	60
Warwick .....	172	Lincoln .....	98	Norfolk .....	59
Cheshire .....	163	Gloucester .....	94	Suffolk .....	57
West Riding, } Yorkshire. .... }	164	Cornwall .....	92	Oxford .....	52
City of York .....	140	Cumberland .....	99	Buckingham .....	55
Kent .....	138	Leicester .....	83	North Riding, } York .....	54
Sussex .....	128	Essex .....	78	Westmorland ....	49
Southampton .....	120	Hertford .....	78	Salop .....	42
East Riding, York	116	Cumberland .....	75	Hereford .....	40
Bedford .....	113	Devonshire .....	72	Rutland .....	34
Derby .....	110	Northampton ....	73	Wilts .....	36
		Dorset .....	65		



Cotton\* is not a new article. All warm climates, within a limited zone, especially those in the vicinity of the sea, produce cotton. From time immemorial cotton has been grown in Hindoostan, China, Persia, Egypt, Candia, and Sicily, and when South America was discovered, the natives were found growing cotton. Yet as it has been well said, cotton could only become an article of trade to those nations which were able, by their industries, to manufacture it into beautiful and durable material, at moderate prices. The manufacture of vegetable substances, combining flexibility and strength, must be of very early date, and to the inhabitants of the temperate and tropic zones especially, the great weight and toughness of skins, must have made patent the advantage of any material which could be made of the necessary strength, and at the same time light and flexible. In ancient times India furnished Europe with her muslins, so called from Mosul, in Mesopotamia. The Assyrian merchants brought such cotton manufactures into Europe, together with their silks from China, their carpets from Persia, and their spices from the East. Herodotus, writing in the year 445 before the Christian era, said of the Indi, "the wild trees bear fleeces for their fruit, surpassing those of the sheep in beauty and excellence, and the natives clothe themselves in cloths made therefrom." From India the manufacture reached Persia, thence it was imported into Egypt, and the eighth century saw its introduction into Europe.

In England for a long time the consumption of cotton was confined to small quantities, principally for candlewicks, and nearly the whole of the cotton fabrics consumed was imported from the Continent. Though as far back as 1328 the Flemings settling in Manchester laid the basis of the British woollen manufacture, in the manufacture of what were called Manchester cottons it was not till the middle of the seventeenth century that cotton-woollens, fustians,

\* The vegetable which we now call cotton passed under different names in different times and countries. The term Carbasus, Carbasum, or *Καρπάσον*, was used by ancient authors to signify cotton. It is so used in the Scripture. The word *כרפס* carpas in Esther i, 6, though translated in the common version for "green," means really cotton. In the Vulgate translation, we have "et carbasini ac hyacinthini." In Revelations xviii, 12, the word *Βύσσος*, mentioned as one of the wares of Babylon, may mean cotton. But after the fourth century, cotton was known by various names which had not been before in use. Probably gossypium was one of these; another name was Lana Xylena, meaning literally tree wool, the plants which produced it being called *ἐριοξύλον*, or wool trees. Another set of names probably arose from a misapplication of the name of the silk-worm. These were *Βομβάκιον*, *Βάμβαξ*, *Βαμβάκιον*, *Πάμβαξ*, whence come bambacinus, made of cotton; bambacenum, cotton cloth; bambacarius, a dealer in cotton cloth; and in Italian bambagio, bambagino, and bambasino. For further researches on the introduction of cotton, see "Textrium Antiquorum," "An Account of the Art of Weaving among the Ancients," by James Yates, F.R.S



dimities, and other articles were exported to the Continent. But as late as the accession of George III, no fabric consisting entirely of cotton was made, and it was only by the operation of those wonderful inventions which suddenly performed so great a revolution, that cotton acquired the present prominent position as an article of trade in this country. What these inventions were every one well knows: yet there is great interest in recalling those feats of genius which now and then ennoble our common humanity.

Spinning by the spindle and distaff is a very old industry, and, in times not far distant, was considered one of the accomplishments of a good wife. "She layeth her hands to the spindle, and her hands hold the distaff," is the saying of the Book of Proverbs. Minerva, as the instructress of man in the useful arts, is fabled as the author of a distaff and spindle; hence, as Apollodorus informs us the Palladium held in its right hand a spear, and a distaff and spindle in the left. It was the custom among the Romans to carry before the bride a distaff charged with flax, and a spindle likewise furnished. In Greece, when the bride was introduced to her new home, she brought with her a distaff and a spindle, and hung her husband's door with woollen yarn; and in England spinning on the distaff continued long to be the honoured occupation of women.\* In process of time the distaff was laid aside for the spinning wheel invented by Jurgen, a citizen of Brunswick, in 1530, though some say that it was known long before him. But though by the spinning wheel there were formed the thick loose cord called a roving, and the fine, thread or yarn, this invention was not attended with great results, because the spinner could only produce one thread at a time, and a man employed eight hours a-day, could only spin three quarters of a pound of yarn. The first substantial improvement was therefore a machine for spinning by rollers, which forms the basis of all the spinning machinery in our factories at the present time, invented by Wyatt, but for which a patent was taken by Lewis Paul, a foreigner; but even that led to no immediate results, as it was scarcely understood at the time. Then came the invention of the fly shuttle and picking peg, which enabled one man, unaided, to weave double the quantity he had theretofore done; and in 1753 Mr. Lawrence Earnshaw invented a spinning machine and cotton reel, but which he himself destroyed, on the plea that it would be the ruin of the working classes. Although these and other minor improvements were for the time barren of results, and were far from proving lucrative to the inventors themselves, they prepared the mind of the people for further changes, and suggested those ideas which even-

\* See an able paper on the Distaff and the Spindle, or the Insignia of the Female Sex in Former Times, by John Yonge Akerman, F.S.A., "*Archeologia*" or *Miscellaneous Tracts relating to Antiquity*," published by the Society of Antiquaries, vol. xxxvii, p. 83.

tually ended in totally superseding manual labour in the cotton industry.

Ten years after this a reed maker of Leigh, a certain Thomas Wright, found out the principle of the spinning jenny, or a machine by which the spinner was enabled to produce several threads in one operation, and in the following year, in 1764, James Hargreaves gave reality to such a machine, and patented, it. For this, however, he was attacked by a mob of the working people, who broke into his house and destroyed the jenny. Great as was the improvement introduced by the spinning jenny, it still left the process of spinning in a very unsatisfactory state, the cotton not being sufficiently even, firm, or strong for use, as the warp or longitudinal thread of a web. To supply this want, linen yarn was used for the warp, but the mixture of two different materials made the article too costly, and moreover unfit for calico printing. Such was the condition of the cotton manufacture in England when Arkwright invented the water frame. How far he may have profited of the earlier invention of Lewis Paul, of elongating cotton by rollers in the spinning operation, we know not, but what if he did? The law of continuity, or rather of gradual progress, says Lord Brougham, governs all human approaches towards perfection. The limited nature of man's faculties precludes the possibility of his ever reaching at once the utmost excellence of which they are capable. Survey the whole circle of the sciences, and trace the history of our progress in each, you will find this to be the universal rule. Think not that Black and Priestly, Bacon and Adam, Smith, Cuvier, and Watt were respectively the unaided discoverers of the theory of latent heat, and of aeriform fluids, of the inductive system, of economic science, of fossil osteology, and of the power of steam. Even Newton, though far in advance of all others in mathematical and in experimental science, was preceded by Cavalleri, Roberval, Fermat, and Schooten, who came as near as possible to the discovery of the differential calculus. Very romantic is the story of Sir Richard Arkwright. Fancy a barber famous only for his processes for dyeing hair, becoming the founder of the great cotton manufacture. Even after the fruitful idea entered his mind, he could not appear at an election in Preston for want of a suit of clothing. Arkwright's water frame, while drawing out the carding or rolling, gave to it the twist and pressure necessary to produce the hardness and firmness which fitted it so admirably to the purposes of the warp; and it was at the same time capable of producing, in equally vast quantities, yarns of finer quality. The effect of these inventions was, as already noticed a total revolution in the character and operation of the spinners. Thenceforth spinning ceased to be a domestic manufacture, and became the product of mechanical ingenuity, and with it rose also the wonderful factory system which, with its attendant advantages,



economy of power, division of labour, and concentration of skill and superintendence, contributed so much to the extension of the cotton manufacture and the accumulation of wealth. Other inventions followed each other afterwards with great rapidity. To Crompton, of Bolton, we owe the mule jenny, which by uniting the rollers of the water frame with the advancing and receding carriage of the jenny, effected the attenuation and spinning of cotton to a degree of fineness that neither of the other two machines could approach. To Cartwright we owe the power loom, a machine for weaving by automatic power; and to Peel we owe the introduction of calico printing. But we should ill appreciate the value of these and other kindred inventions, if we did not take them in connection with Watt's great discoveries of the use and application of steam power, and with the improvements made in inland navigation by the opening of the Bridgewater canal.

And to what use would have been this great development of the cotton manufacture, had not a corresponding increase taken place in the production of cotton wool? Hitherto the importation of cotton to this country had been very limited. In 1764 we imported scarcely 4,000,000 lbs., and even in 1785, after Arkwright's patent had expired, we imported only 18,000,000 lbs. of cotton. By this time, however, the seed had been transported to the United States, and very soon after a complete change took place in the capability of that country for producing cotton, by the invention of Mr. Whitney's machine to separate cotton from the seed. This machine did for the planters of the American States, what the genius of Arkwright and Watt did for the cotton manufacture in England; and it is to this machine that we owe the gigantic expansion of the cotton trade. Previous to 1790 the United States did not export a single pound of cotton.\* Whitney's invention came into

\* The following facts regarding the culture of cotton in the American States, were reported by Mr. Finnie, a cotton planter to the Government of India. The cotton now cultivated in Mississippi and Louisiana, came from Mexico, hence the name "Mexican." There is no data as to the precise time and circumstances of its introduction. The cotton known as "Tennessee" and "Upland Georgia," is involved in some degree of uncertainty. The plant is supposed to have come from the Grecian Archipelago in the early settlement of the colony of Virginia, where it was cultivated; but in consequence of the season between the last frost of spring and the first frost of autumn being too short, it did not prove a profitable crop, and the early emigrants from Virginia took with them the seed to the territory of Kentucky. The part of this territory now known as Tennessee, was found to be more favourable, and known as Tennessee cotton it soon acquired a character for cleanliness superior to the "Upland Georgia." As the early adventurers pushed southward, the northern part of Mississippi was discovered to be still more congenial to the plant; the shrub became more and more prolific, and produced a finer quality. The Sea Island cotton came originally from the Isle of Anguilla, in the Caribbean Sea, and furnished the first seed to the early European settlers in the Bahamas; in two islands of the cluster, viz., Long Island and Exuma, they succeeded in producing a fine cotton. A small bag of the seed was sent to a gentleman in Georgia about the year 1785. Ten years before, the first provincial legis-

operation in 1793, and in 1794 1,600,000 lbs. were suddenly exported. In 1791 America grew only  $\frac{1}{245}$ th of the produce offered in the markets of the whole world; in 1845, more than seven-eighths of the cotton produced in the world was in the United States of America; and in 1861 they gave upwards of one thousand millions of pounds. And as the production increased, so the consumption increased immensely. Little by little has this interest acquired gigantic proportions. Farther and farther has the use of cotton been extended, and by degrees it has nearly distanced all other branches of British industry.

Of 6,300 factories in the United Kingdom, nearly the half of them are for cotton. Of 36,500,000 spindles, 30,000,000 are for cotton. Of 490,000 power looms, 399,000 are of cotton. Of 779,000 persons employed in factories, 450,000 are employed in cotton. And as compared with foreign countries, whilst we have 30,000,000 spindles, France has 4,000,000 spindles, Russia 2,000,000, Germany 2,000,000, Austria 1,500,000, Switzerland 1,300,000, Italy 500,000, Belgium 500,000, and Spain 300,000. The proportion of the cotton trade to the general trade of this country is very large. Of 377,000,000*l.*\* which constitutes the value of the total trade of the United Kingdom, 94,000,000*l.* or 25 per cent. is the value of the imports and exports of cotton.

*Relation of the Value of Cotton Manufacture and Yarn Exported, to the Total Exports of British and Irish Produce.*

[Unit 000's omitted.]

Years.	Value of Cotton Manufactures and Yarns Exported.	Total Value.	Percentage.
	£	£	
1820-24 .....	19,922,	36,782,	46
'25-29 .....	16,974,	36,050,	47
'30-34 .....	18,417,	38,641,	47
'35-39 .....	23,211,	45,250,	51
'40-44 .....	23,806,	52,176,	45
1845-49 .....	24,902,	58,637,	42
'50-54 .....	30,485,	84,002,	35
'55-59 .....	40,658,	116,120,	41
'60.....	52,012,	135,891,	38
'61.....	46,837,	125,115,	37

lature of South Carolina urged the inhabitants to attend to the culture of the cotton plant, but little attention had been paid to it. The seed alluded to was at first planted on the islands bordering the coasts of Georgia and South Carolina, and extending from 32° 30' to 30° of north latitude, through a space of about 200 miles, these islands were originally covered with the luxuriant growth peculiar to a southern clime, and abounded in the beautiful live oak and other evergreens. The soil being new, warm, and fertile, the plant grew most luxuriantly, and gradually extended on the coasts of Georgia and South Carolina.

\* This of course is exclusive of the value of all produce raised and consumed in the United Kingdom.—ED. S. J.



Relation of the Value of Raw Cotton to the Total Value of Foreign and Colonial Merchandize Exported.

[Unit 000's omitted.]

Years.	Value of Raw Cotton.	Total Value.	Percentage.
	£	£	
1854 .....	2,302,	18,636,	12
'55 .....	2,475,	21,003,	11
'56 .....	3,346,	23,393,	14
'57 .....	3,431,	24,108,	14
'58 .....	3,955,	23,174,	17
'59 .....	4,218,	28,281,	14
'60 .....	5,388,	28,630,	19
'61 .....	8,578,	35,694,	24

And of 217,000,000*l.* the total value of our imports, 39,000,000*l.* was the value of cotton.

Relation of the Value of Raw Cotton Imported, to the Total Imports into the United Kingdom.

[Unit 000's omitted.]

Years.	Value of Cotton (Raw) Imported.	Value of Total Imports.	Percentage.
	£	£	
1854 .....	20,175,	152,389,	13
'55 .....	20,849,	143,543,	14
'56 .....	26,448,	172,544,	15
'57 .....	29,289,	187,844,	15
'58 .....	30,107,	164,584,	18
'59 .....	34,560,	179,182,	18
'60 .....	35,757,	210,531,	17
'61 .....	38,653,	217,352,	18
Total { Imports ....	38,653,	217,352,	—
	Exports ....	160,809,	—
	94,068,	378,161,	40

And who can tell the amount of the cotton manufacture consumed in this country. It probably amounts to 30,000,000*l.* and more. Calculating the quantity imported reduced by the percentage of waste in the conversion into yarn; and then at so many yards of manufactured goods per pound, with proper deduction for the export of yarn and manufacture, the consumption of cotton in this country may be set down 7½ lbs. per head. In France the consumption is probably 4 lbs. per head. In Germany and Austria 3 lbs. In Italy 2 lbs., and in Russia 1 lb.

But large as is the consumption of cotton in this country, we

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cannot say that it has displaced materially the consumption of wool, linen, or silk. If we import 1,200,000,000 lbs. of cotton, we also import 147,000,000 lbs. of wool, besides the large quantity produced in this country; 224,000,000 lbs. of flax and hemp; and 10,000,000 lbs. of silk. In describing the extent of our trade in cotton, I have not indicated the numerous trades ministering directly or indirectly to the prosecution of this branch of industry. The capital invested in this manufacture has been variously estimated, and may be set down at at least 100,000,000*l.*,\* whilst the shipping required to carry the large quantity of cotton from the Atlantic and Eastern ports is not less than 1,000,000 tons. The entire interest, from whatever view it is regarded, has colossal proportions, and anything which affects or crushes it, inflicts a deep wound on the resources of the United Kingdom.

The cotton manufacture has some specific localities in this country; chiefly in England; but partly in Scotland. Ireland has just a sprinkling of it. In England, Lancashire is the chief place, next Cheshire, and then Yorkshire and Derbyshire, with a little in Cumberland, Notts, Stafford, Gloucester, and Leicester. In Scotland, Lanarkshire is the chief place, and there is a little in Renfrewshire, Perth, Ayr, &c. Of 450,000 persons employed in this manufacture, 407,000 were in England and Wales, 40,000 in Scotland, and 3,000 in Ireland. The great cotton towns distinguished for their smoke, dirt, bustle, excitement, and dense population, are Manchester, Wigan, Bury, Bolton, Blackburn, Preston, Leigh, Oldham, Ashton, Staleybridge, Hyde, and Stockport. The following are the statistics of factories for textile fabrics, extracted from a return laid before Parliament in 1861:—

\* It is difficult to estimate the capital embarked in the cotton manufacture. In an article on the difficulties and dangers of the cotton trade, by Mr. Bazley, M.P., it is stated that the fixed investment, including land and water rights, may amount to 60,000,000*l.*, and that to work all these concerns and their ramifications, 20,000,000*l.* more are needed, making in all 80,000,000*l.* Besides this, he valued the mercantile and consumers' stock, in home and foreign markets, of cotton and auxiliary materials, and bankers' capital devoted to the manufacture, at 120,000,000*l.*, making the whole gross capital employed in it 200,000,000*l.* This is certainly a large estimate. In the article in the "Encyclopædia Britannica," supposed to be by Mr. Bazley himself, the capital invested in this manufacture was estimated at at 54,000,000*l.* Mr. Redgrave, the factory inspector, in his paper on the Textile Fabrics, presented to the International Statistical Congress, computed the cost of building, steam-engines, machinery, &c., at 21,000,000*l.*, raw materials 8,000,000*l.*, wages 4,000,000*l.*, grease, oil, leather, 1,000,000*l.*, making in all 34,000,000*l.*, and if we take Mr. Ellison's estimate as given in Mr. Mann's work, of 23*s.* to 24*s.* per spindle, and 24*l.* per loom, we shall have for 30,387,000 spindles and 399,992 power looms, 45,000,000*l.* Estimated floating capital and cash in the hands of bankers, 25,000,000*l.*; probable capital employed by manufacturers in subsequent processes of bleaching, dyeing, printing, 30,000,000*l.*; floating capital of importers of raw materials, shipowners, &c., 9,500,000*l.*, total 110,000,000*l.*



*Statistics of Factories for Textile Fabrics.*

	Number of Factories.	Number of Spindles.	Number of Power Looms.	Number of Operatives.
<b>ENGLAND—</b>				
Lancaster .....	1,979	21,530,532	306,423	315,627
York .....	369	2,414,898	17,393	27,810
Chester .....	212	3,373,113	32,926	40,860
Derby .....	79	682,008	7,581	12,965
Cumberland .....	15	136,212	1,761	3,281
Middlesex .....	10	5,834	—	323
Stafford .....	8	81,116	694	1,982
Leicester .....	3	4,408	14	219
Nottingham .....	26	36,000	—	2,183
Flint .....	1	21,800	—	190
Suffolk .....	1	—	32	52
Warwick .....	7	—	186	445
Surrey .....	2	—	—	53
Gloucester .....	1	66,004	1,115	1,514
Norfolk .....	2	—	—	94
	2,715	28,351,925	368,125	407,598
<b>SCOTLAND—</b>				
Aberdeen .....	2	66,276	70	770
Bute .....	4	52,148	977	976
Dumbarton .....	4	75,296	246	758
Dumfries .....	1	16,308	—	112
Lanark .....	83	1,138,602	24,149	27,065
Linlithgow .....	1	19,800	—	121
Perth .....	3	57,796	552	1,069
Renfrew .....	32	408,742	2,968	8,749
Stirling .....	5	50,190	180	528
Ayr .....	3	30,240	968	1,089
	138	1,915,398	30,110	41,237
<b>IRELAND—</b>				
Antrim .....	3	72,884	200	639
Dublin .....	2	11,668	391	492
Londonderry .....	1	—	60	77
Tyrone .....	1	—	36	18
Waterford .....	1	30,292	940	1,412
Wexford .....	1	5,100	130	96
	9	119,944	1,757	2,734
Cotton Factories United Kingdom .....	2,887	30,387,267	399,992	451,569
<b>Woollen Factories—</b>				
Woollen .....	1,679	2,182,609	21,770	86,983
Worsted .....	532	1,289,172	43,048	86,063
Flax .....	399	1,216,674	14,792	87,429
Hemp .....	5	2,580	1	607
Jute .....	36	32,982	554	5,967
Hosiery .....	69	—	—	4,487
Silk .....	771	1,338,544	10,709	52,429
	6,378	36,449,828	490,866	779,534

There is one important feature in the cotton industry, which invests it with something more than simple commercial considerations, it is, that cotton has greatly contributed to the spread of comfort and civilization among the masses of the people. Hitherto it has been the cheapest material for clothing ever produced. Even where the masses are yet sunk in the most abject condition, and in places not yet brightened by the light of civilization and Christianity, wherever, in fact, a cover is needed to shelter man, whether in frozen regions or in tropical climates, a cotton dress and a fustian jacket will ever find a hearty welcome. In a paper read by Mr. Ashworth before the Society of Arts, he compared cotton with wool and flax. One pound of wool for flannel cost 18*d.* per lb.; when manufactured into cloth it costs 3*s.* 1*d.* per lb.; 1 lb. of flax for shirting costs 10*d.* per lb., when manufactured it costs 2*s.* 4*d.*, but 1 lb. of cotton for shirting, which used to cost 6*d.* per lb., when manufactured costs only 1*s.* per lb. The materials for a full dress of outer garments, if composed of wool, would cost not less than 30*s.*, whilst the same quantity of material of cotton, and of more durable quality, cost only 7*s.* 6*d.* to 10*s.* The labourer's wife was able to purchase from a draper a neat and good cotton print at 5*d.* per yard, and allowing seven yards to the dress, the material required only 2*s.* 11*d.* How much more is the cost of a woollen dress even of the lowest quality. This source of economy, which entirely depends now upon the cost of the materials, makes the question of cotton supply a consumer's question,—a question in which we are all interested.

And how extensive is our commerce in this article. It is an extraordinary fact that we are importing nearly 600,000 tons of cotton from a distance of four thousand miles and even 13,000 miles, and after redistributing about 78,000 tons of it in an unmanufactured state, we convert the remainder into yarn and woven manufacture of all kinds at three times the original cost of the raw material when landed on our shores. Whilst the value of the raw cotton imported in usual years amounts to about 36,000,000*l.* to 38,000,000*l.*, the value of the cotton manufactures exported, besides the entire quantity consumed in this country amounts to as much as 47,000,000*l.* to 50,000,000*l.* Our exports of cotton manufactures and yarns are enormous. We are sending abroad yearly some thousand millions of yards of calico printed and dyed; and we could not in our space give the quantities of other articles. With the general adoption of better principles of commercial policy, most nations have been reducing sensibly their duties on cotton manufactures and yarn. Even France hitherto closed to British goods has now been opened, and bids fair to become a most extensive field for commercial intercourse. How auspicious was it to have thus opened a new outlet for



our industries just before the stream of prosperity ceased to flow towards the country with which we had the largest trade. What lessons does it teach us to be always ready to seize favourable opportunities when they are offered to us.

Some surprise, or rather fear has been expressed in influential quarters, on seeing Russian and Swiss cotton yarn sold in the British market. Most likely it was sent to this country to take advantage of the high prices. Certainly the time has not come yet when these countries can produce more than they can consume themselves, or produce cotton yarn cheaper than British manufacturers. But can it be that a formidable competition is likely to be met with in future in this, we may say, the most indigenous of English manufactures? Nothing, certainly, hinders foreign manufacturers, with wealth at their command, from importing this exotic vegetable as we do; or India from consuming the article of her own growth; and manufacturing it to the highest perfection. Nor are they hindered from importing the best machinery ever invented, the most skilful engineers, the most skilled workmen. All is now free. This is no longer the age of mystery. No longer the age of artificial protection to national industry. And yet we anticipate that English manufacturers will always be able to face such competition, and permanently maintain the supremacy they have hitherto enjoyed. And why? It is because we must attach the greatest importance to our national character, to the strenuous energies of our manufacturers to overcome difficulties wherever they may present themselves, and, above all, to the moral worth, and physical aptitude of our people to work hard and long. Whilst the present pre-eminence of Britain in wealth, with her command of the markets of the world, and her riches in coal and iron, which no nation can rob her of, and no free trade can communicate to others, will ever keep her at the head of the manufacturing countries of the world.

Having now shown the vast importance of the cotton trade and manufacture, and the large proportion it bears to the commerce of the kingdom, the first consideration naturally suggested is, that one of the largest of our industries is wholly dependent on a material which we do not possess ourselves, and which other nations may deprive us of. It is an industry tributary to foreign countries, and entirely dependent upon the commercial relations of this part of the world with America, Asia, and Africa. When we think of this it might at first sight appear that other industries which work out indigenous products are safer and more satisfactory. Nothing, however, can be more delusive than this. There is no industry independent of all vicissitudes from without. The agricultural does not depend for the seed from foreign countries, but it depends for its prosperity on the prosperity of the consumers, who are again dependent on those adventitious occurrences which foster or check the avenues of

wealth in any part of the world. But there is a further aggravation in the dependence of the cotton manufacture in the fact that the large increase of the manufacture in this country has been almost entirely supplied by American material. The countries which used in ancient times to supply cotton to Europe have remained quite stationary in their production, whilst America has made gigantic strides. In 1814 of 538,000 cwts. of cotton imported, only 106,000 cwts. were from the United States of America; in 1844 of 5,268,000 cwts. imported 4,600,000 cwts. came from North America, and in 1860 out of 12,400,000 cwts. imported, nearly 10,000,000 cwts. came from the United States.

The following table of the imports of cotton from 1815 to 1862, is derived principally from a work on the "Cotton Trade of Great Britain," by James A. Mann, F.S.S., to whom I am indebted for much additional information on the subject.

*Cotton Imported, 1815-62.\**

Years.	United States.	Per Cent.	Brazil.	Per Cent.	Mediterranean.	Per Cent.
	lbs.		lbs.		lbs.	
1815-19 .....	59,405,	46	19,084,	15	322,	—
'20-24 .....	103,844,	68	24,361,	15	2,463,	2
'25-29 .....	159,326,	70	24,358,	11	10,294,	5
'30-34 .....	231,337,	79	26,531,	9	4,751,	2
'35-39 .....	327,552,	79	22,973,	6	7,769,	2
1840-44 .....	470,417,	81	17,287,	3	8,798,	1
'45-49 .....	525,590,	84	21,116,	3	11,662,	2
'50-54 .....	647,205,	78	24,008,	3	27,159,	3
'55-59 .....	782,275,	76	23,483,	2	33,751,	3
'60 .....	1,115,891,	80	17,287,	1	44,037,	3
'61 .....	819,501,	65	17,290,	1	41,479,	3
'62 .....	32,000,	5½	60,000,	10¼	64,000,	11

Years.	East India.	Per Cent.	West India.	Per Cent.	Other Parts.	Per Cent.	Total.
	lbs.		lbs.		lbs.		lbs.
1815-19 .....	34,294,	26	11,223,	8	6,109,	5	130,439,
'20-24 .....	13,553,	9	7,515,	5	1,830,	1	153,566,
'25-29 .....	23,793,	10	6,129,	3	1,818,	1	225,718,
'30-34 .....	27,828,	9	2,450,	1	1,103,	—	294,000,
'35-39 .....	51,260,	12	1,580,	—	3,905,	1	415,039,
1840-44 .....	84,344,	14	1,192,	—	4,268,	1	585,307,
'45-49 .....	66,371,	11	995,	—	873,	—	626,607,
'50-54 .....	125,621,	16	428,	—	2,249,	—	826,670,
'55-59 .....	180,213,	18	667,	—	8,668,	1	1,029,058,
'60 .....	204,141,	14	1,051,	—	8,533,	—	1,390,939,
'61 .....	369,040,	29	486,	—	9,180,	—	1,256,985,
'62 .....	420,000,	11½	11,000,	1¾	—	—	587,000,

\* In this, and most of the following tables, the last three figures are omitted; thus, 59,405, = 59,405,000.



This complete dependence on one country for the supply of one of the most important articles of British industry has always been regarded with the greatest anxiety. What if the produce of the United States should fail altogether for one single year? What if we were in actual war with them? How extensive would be the sufferings of our population! What derangement, what ruin would it cause among our labouring classes. And how such a loss would re-act on all the other branches of trade. For a considerable time some of the most intelligent Manchester manufacturers have been sounding the alarm, and again and again they pressed upon Her Majesty's Government the need of directing their attention to other cotton producing countries, especially to India and the British colonies, with a view to remove all the obstacles which might exist to the fullest production of cotton. But many and great are such hinderances, and when the fatal contest between the United and Confederated States of America unfortunately commenced it found us as unprepared as ever to meet the dire calamity.

And what is our present position? The question must be considered under two aspects. First, as it affects us now,—what are our immediate prospects of supplies to keep our factories at work? Second, as it will affect the future,—what are likely to be the consequences of this civil war on the production of cotton throughout the world? We have already seen the quantity imported in this country for a long period since 1815. For further elucidation we shall give the imports for the last ten years, as stated in the Liverpool Cotton Brokers' Circular.

Imports of Cotton in the United Kingdom in Thousand Bales.

	American.	East India.	Other Quarters.	Total.
1852 .....	1,784,	213,	344,	2,341,
'53 .....	1,532,	485,	248,	2,265,
'54 .....	1,667,	308,	198,	2,173,
'55 .....	1,621,	395,	259,	2,275,
'56 .....	1,758,	464,	246,	2,468,
1857 .....	1,478,	681,	262,	2,421,
'58 .....	1,854,	357,	220,	2,431,
'59 .....	2,085,	511,	232,	2,828,
'60 .....	2,580,	562,	221,	3,363,
'61 .....	1,841,	986,	208,	3,035,
'62 .....	72,	1,073,	300,	1,445,

The quantity taken for consumption since 1835 have been as follows:—

	Average lbs. Mlns.		Average lbs. Mlns.
1835-39 .....	373,	1855-59 .....	888,
'40-44 .....	515,	'60 .....	1,084,
'45-49 .....	574,	'61 .....	1,007,
'50-54 .....	705,	'62 .....	480,

And in weekly number of bales the same was as follows since 1852:—

	Bales. Thousands.		Bales. Thousands.
1852 .....	36,	1858 .....	41,
'53 .....	35,	'59 .....	44,
'54 .....	37,	'60 .....	50,
'55 .....	40,	'61 .....	43,
'56 .....	43,	'62 .....	22,
'57 .....	38,		

The exports since 1835 have been as follows:—

	Average lbs. Mins.		Average lbs. Mins.
1835-39 .....	35,	1855-59 .....	145,
'40-45 .....	32,	'60.....	256,
'45-49 .....	73,	'61 .....	285,
'50-54 .....	120,	'62.....	230,

And in bales since 1852 as follows:—

	Bales. Thousands.		Bales. Thousands.
1852 .....	282,	1858 .....	344,
'53 .....	349,	'59 .....	436,
'54 .....	317,	'60 .....	609,
'55 .....	317,	'61 .....	677,
'56 .....	311,	'62 .....	564,
'57 .....	337,		

And the stock of cotton at the end of each year during the following periods since 1835, was as follows:—

	Average lbs. Mins.		Average lbs. Mins.
1835-39 .....	91,	1855-59 .....	171,
'40-44 .....	241,	'60.....	250,
'45-49 .....	239,	'61.....	294,
'50-54 .....	237,	'62 .....	184,

And in bales, distinguishing American, East India, and other qualities were as follows since 1852, in thousand bales:—

	American.	East India.	Other Qualities.	Total.
1852 .....	363,	131,	163,	657,
'53 .....	308,	230,	139,	717,
'54 .....	311,	202,	111,	624,
'55 .....	236,	133,	117,	486,
'56 .....	178,	99,	55,	332,
1857 .....	202,	191,	159,	452,
'58 .....	269,	56,	47,	372,
'59 .....	307,	116,	47,	470,
'60 .....	395,	196,	43,	594,
'61 .....	283,	378,	38,	699,
'62 .....	70,	300,	63,	233,



From these tables it will be seen that our stock is now much less than it was in 1860 and 1861, but not much short of the stock held in previous years. It will be seen, moreover, as regards the importation, that from the United States we received in 1862 only 72,000 bales against 1,840,000 bales in 1861; and 2,579,000 bales in 1860; and from British India we received 1,073,000 against 986,000 bales in 1861, and 562,000 bales in 1860, a very trifling increase comparatively to the loss we suffered on our importation from America.

Such then is our position as regards quantity, and now as to prices. The average price per pound of bowed cotton at the close of each year from 1815 to this time has been as follows:—

Years.	Average Price.	Years.	Average Price.	Years.	Average Price.	Years.	Average Price.
	<i>d.</i>		<i>d.</i>		<i>d.</i>		<i>d.</i>
1815.....	21½	1827 ....	6½	1839 ....	7⅞	1851 ....	5¾
'16.....	18¼	'28 ....	6⅝	'40 ....	6	'52 ....	5⅝
'17.....	20⅜	'29 ....	5¾	'41 ....	6¼	'53 ...	5⅝
'18.....	20⅓	'30 ....	6⅞	'42 ....	5⅝	'54 ....	5⅝
'19.....	13½	'31 ....	6	'43 ....	4⅝	'55 ....	5¾
1820.....	11½	1832 ....	6⅝	1844 ....	4⅞	1856 ....	6
'21.....	9½	'33 ....	8½	'45 ....	4⅝	'57 ....	7¼
'22.....	8¼	'34 ....	8⅝	'46 ....	4⅞	'58 ....	6¼
'23.....	8¼	'35 ....	10½	'47 ....	6¼	'59 ....	6¼
'24.....	8½	'36 ....	9⅞	'48 ....	4¼	'60 ....	7 to 7¼
1825.....	11⅝	1837 ....	7	1849 ....	5⅝	1861 ...	7¼ „ 12¼
'26.....	6¾	'38 ....	7	'50 ....	7¼	'62 ....	12⅝ „ 26

It is difficult to prognosticate whether or not present prices will be maintained, as they will be modified by every turn of American politics; but it is quite evident that the high rates have already immensely diminished the consumption, and that they will continue to have that effect so as to more than balance the supply and demand. It is probable that, during last year, dealers resorted almost exclusively to the stock on hand of manufactured goods, whereby such stocks, in all parts of the world, will have been considerably reduced. But we can scarcely expect an extensive demand during the next year; first, because for some years past the exports, especially to India, have been far in excess of the demand, and secondly, because the large consumption of cotton was decidedly owing to the very low prices at which calicoes and other articles of general use were sold.

Secondly, what are our future prospects as to supplies? This question mainly depends on the capacity of other countries to produce. First among these is decidedly the United States. The cotton district of the United States lies between 30 and 36 degrees of latitude, extending from the Atlantic coast westerly

through 20 degrees of longitude. From this belt of country scarce 400 miles in width, but including within it the States of New Orleans, Texas, Georgia, South Carolina, North Carolina, Virginia, Florida, and Alabama; the vast American product is gathered amounting in good seasons to nigh 4,000,000 bales. And, but for the secession of the entire district, the prosperity and increase of the last few years would have justified the belief that the annual yield would have been doubled. We can scarcely hazard an opinion as to the probable effect of this revolution on slave labour. Should slavery be abolished we may fairly anticipate, an almost total cessation of cotton production in those States for some years to come; at least judging from the corresponding effect of the abolition of slavery in the West Indies Colonies. But even should the Confederate States succeed in obtaining their independence and strengthening their institutions, it is most likely that agriculture and other interests will feel for some time the influence of the present rupture in want of capital and want of spirit for large commercial operations, especially in consequence of the withdrawal of capital by the Northern people. What may be the quantity of cotton now on hand in the Confederate States it is impossible to say. The estimates, varying considerably, are not reliable.

India has always been the hope and chief reliance of the cotton manufacturers. There is no question as to the boundless capacity of India to produce any quantity of cotton. It is estimated that the annual growth of cotton in India is between 4,000,000 and 5,000,000 bales. Though certain districts are specially marked in the map of India\* as cotton-growing districts, they indicate those portions only which have been producing, without excluding those which *may* produce, this fibre. As yet the only part from whence we derived our imports from India are those bordering on the sea, where the cost of transport is not so high. Let the railways penetrate the interior and we shall receive double or treble the present quantities. But the quality of Indian cotton is neither so good or clean as the American. True. The Surat is decidedly short-stapled and dirty; but we are now receiving cotton from India produced from American seed, which compares favourably with American cotton. The samples of cotton at the International Exhibition showed this remarkable fact, that whilst the mean length of staple of native cotton, or cotton from native seed, was nine-tenths of an inch, the mean length of cotton from foreign seed was 1·66 inch, and that whilst the valuation of native cotton was from 6*d*.

\* A coloured map of India was exhibited, showing the district which had hitherto produced cotton. The districts so marked are Kurrachee, Sheckapoor, Guicowaes, Khandeish, Nizam, Aurungabad, Jubbulpore, Belgaum, Bellary, Kurroot Guntoor, Coembartoor, Tinnevely, Mushra, Agra, &c.



to 8*d.* that of foreign seed cotton was from 12*d.* to 16*d.* per lb. It will be seen also from the diagram exhibited\* that the mean length of staple of New Orleans cotton is 1·02, of Sea Islands 1·61, of South America, Brazil, 1·17 and of Egypt 1·41.

I am not sufficiently acquainted with the present adaptation of the machinery for other qualities than American. We may sympathise with the manufacturers if they refuse making extensive changes, in the uncertainty which exists about American politics. But we may be quite sure that a good deal of work is already done in the way of using Indian cotton, and that we shall by degrees see considerable modification in the people's mind respecting this produce. As it is, the great bulk of our consumption did never consist of the finest long-stapled Sea Island. A good ordinary or a middling New Orleans has been the quality most in use, and this quality, we are assured, may be obtained freely from India. For some years past the proportion of Indian to other kinds of cotton imported has been constantly increasing, and if the prospects in America continue gloomy, we may anticipate that our imports from India will increase enormously. The extension of railways and internal navigation will greatly facilitate the carriage of cotton from the interior to the shipping ports, and the superintendence of Europeans will tend to improve the quality and make it more and more adapted to the existing machinery. It is an important fact to know that cotton can be grown in India at a price which will enable the European in ordinary

\* A diagram was also exhibited showing the length of staples of different kinds of cotton, kindly lent by Dr. Forbes Watson, of the India Museum, which showed the following results:—

	Mean Length of Staple.
	Inches.
United States upland .....	1·02
„ Sea Island .....	1·61
„ Florida .....	1·58
Pernambuco .....	1·35
Peru .....	1·30
Surinam.....	1·30
Maranhão .....	1·15
Paraíba .....	1·20
South American Brazilian .....	1·17
Egypt .....	1·41
Algiers .....	1·50
Lagos.....	0·90
Loanda .....	1·05
Port Natal .....	1·10
Java .....	1·10
Australia .....	1·65
India, indigenous or native .....	0·89
„ exotic or American .....	1·08
„ Sea Island .....	1·50

seasons to lay it down in Liverpool at a less cost than New Orleans. I have not time to enter into the alleged shortcomings of the Indian Government, in fostering the cultivation of cotton. No one will argue that the Government should itself cultivate it. They have encouraged as far as it was in their power the formation of railways. They have even spent some half-million pounds in experiments in planting the American seed. But as to give a bounty in the shape of an exemption from the land tax, I doubt very much whether it would be expedient or proper. The cultivation of the soil, the working of mines, the planting of factories, are matters exclusively dependent on private exertions, and it would be most injurious were the Government to give privileges and exemptions to any branch of industry. It would teach lessons, the evil effects of which would not be so easily eradicated. Other colonies are striving to produce cotton. Jamaica has entered vigorously in the competition. A Company has been formed there to stimulate the growth of cotton. Australia has exhibited some splendid samples at the International Exhibition. Queensland especially is likely to afford considerable supplies. Natal is doing its utmost to offer some quantity, and there is every facility for producing cotton in Honduras,\* though in these colonies the difficulty of providing labour and its great cost must always prove an insuperable barrier. Among foreign countries Egypt promises to become a large field for the cultivation of cotton. The Viceroy has given his countenance to the works recommended by the Cotton Supply Association. Turkey possesses vast tracts of country, which by soil and climate are peculiarly

\* *Honduras*.—The whole of Central America from the Isthmus of Tehuantepec to that of Panama, including the peninsula of Yucatan, is pre-eminently a cotton growing region. Everywhere the cotton plant in several of its best and most important varieties, is both indigenous and perennial. That valuable variety the Anguela, better known to commerce as "Sea Island," is a native of Honduras, whence it was sent to the United States shortly after the revolution. The seeds of the native variety are entirely bare of down, and may be removed by the roller gin. Hand-picked samples from Honduras have been reported fit for making the finest Nottingham lace. There is another variety known as the clustered or kidney seed. It is a strong and long staple cotton, but not fine, excellent however for the heavier kinds of cloth. The seeds are almost bare, adhering together instead of being detached, for which reason the bolls are easily picked from the plant, with little intermixture of dry leaves. This variety is very hardy, and grows everywhere in Central America, inland and at high elevations, as well as in the low lands near the sea. There are other indigenous kinds, fine but adhering closely to the seeds and difficult to clean, except with the saw gin. One of the varieties is of a grey colour, another reddish, furnishing cloth of corresponding shades. The ordinary cotton plant which in South Carolina is an annual, being killed every year by the frost, rising only to a spread and height of eighteen inches or two feet; becomes a perennial in Central America, or from four to six feet in height and spread. The yield is two crops of 500 lbs. each per acre, or 1,000 lbs. per year.—M. Squire's report of 25th January, 1861, published in the "Cotton Supply Reporter" of 1st March, 1862.



adapted to cotton. Italy, which fifty years ago supplied nearly the whole of the cotton consumed in the chief markets of Europe, has set herself in earnest to extend considerably the cultivation of cotton.\* Indeed when we consider the abundance and cheapness of labour there, the vicinity of Italy to this country, the state of civilization, and the perfect acquaintance of the people with the cultivation of cotton, we much doubt whether any other country besides the United States and India, offers anything like the prospect of a large continuous and cheap supply of cotton as Italy. South and Central America, including Brazil, Peru, Paraguay, &c., can do much to supply large quantities. Still taking them altogether it will be a long time ere they can furnish sufficient to make up for the enormous quantities we have been receiving from America. But long as it may be, that time will come, and then in all probability we shall have double the quantity heretofore produced in the two continents. Nor it will be too much. The consumption has been sensibly increasing in late years, and will still further increase as civilization and comforts advance. And we may safely anticipate that whatever be the quantity attainable, it will not be more than enough to meet the increasing demands of the population of the world.

As might have been expected, the sudden failure of the chief supply of cotton not only rendered it necessary to seek elsewhere for land and climate adapted to the cultivation of the fibre, but has exercised the ingenuity of many to find substitutes for cotton in other vegetable substances. Prominent among these is the *Zostera Marina*, discovered by Mr. Henry Harben, a fibre which may be collected in great abundance all along the sea shore, and which, it is asserted, has many of the requisites of cotton. Jute has been suggested to be spun on cotton machinery. The Rhea bark fibre has been proposed, and also the *lichen plicatus*, or the hairy tree. It is difficult to say whether the anticipations of the respective inventors or discoverers will be realized, but it will be long before any of them can compete successfully with cotton, whilst it is a question whether the cost of labour in this country will not prevent any attempt at obtain-

\* *Italy*.—The species of cotton grown in Italy are the *Gossypium herbaceum* and the *Gossypium siamense*. The cotton region embraces a great extent of country, viz., from the extreme south to the neighbourhood of the valley of the Tronto, lat. 43 deg. N. on the Adriatic Sea; on the western shore it extends rather farther north. A hectare of land in Italy yields from 250 to 600 kilograms of cotton, or from 2 to 4 $\frac{3}{4}$  cwt. per acre. There are probably 8,000 square kilometres, or 80,000 hectares, now lying waste, which might be cultivated annually with cotton in the southern continental provinces alone. Of these 8,000 square kilometres, if only one-third were cultivated, there would be a produce of 100,000 tons, or about 550,000 bales. A valuable report on the cultivation of cotton in Italy has been issued by M. G. Devincenzi, Italian commissioner to the International Exhibition, 1862.

ing and reducing any such materials in sufficiently large quantity for our consumption.

It is not the object of this paper to dwell on the effect of the present scarcity of cotton on our manufacturing district. Suffice it to say that at least 400,000 persons have been thrown out of employment and compelled to depend for their subsistence on the charity of their fellow-men. Assuming that 400,000 workpeople are employed when all the mills are running, there would be about 250,000*l.* per week of direct wages. About the fourth is now employed. The remainder is nearly entirely idle. And though we cannot anticipate the chances of employment for the future, we may safely reckon that during the whole of next year, unless the American ports are suddenly opened, there will not be work for more than three days a-week, which will cause a continuous loss of half the amount of wages.

It is probable that the factory system which has of late years been introduced in our manufactures, whilst highly advantageous for promoting material wealth, aggravates a good deal the evil consequences of such contingencies. It may be that factory workers are more likely to enter heedlessly into marriage as they require to make no provision for a workshop, tools, and other outlays, once necessary for entering life, while they have the prospect of the wife and soon of the children as contributors to the support of the family. It may be that the factory system tends to accumulate masses of persons called *prolétaires*, who have no provision for a week but the labour of that week. Whatever it is, we must accept the evil and the good together. The sudden cessation of that work which constitutes the only means of livelihood of so many thousand families is a serious event. All we can do is to alleviate its awful consequences by our prompt and liberal assistance.

[It will interest the reader to refer to Mr. G. R. Porter's Paper, on the "Statistics of the Cotton Trade in Great Britain," in vol. xiii of the *Journal*. The crop in the United States in 1848-9, is stated by Mr. Porter to be 2,728,596 bags. Mr. Porter remarks that "There is a growing opinion that now and for some few years past, we have reached the maximum supply of cotton from the United States, a fact which should it prove correct, makes it a matter of absolute necessity either to seek for further supplies of the article from other sources, or to find some efficient substitute that shall provide the means of employment for our constantly growing numbers."—ED. S. J.]

*Note.*—The following communication was made to the Society in connection with Dr. Leone Levi's paper, by Commendatore Devincenzi, Royal Commissioner for Italy to the International Exhibition:—

In Italy the cultivation of cotton is very ancient. We can trace it as far back as the ninth century. *Before cotton was cultivated in America* Italy supplied a large quantity of cotton to all the European nations, and during the Continental wars of the First Empire, Italian cotton was the only kind which could be procured in the European market, so that during that period the cultiva-



tion of cotton was very extensive in Italy, and constituted one of the principal agricultural products of the country.

The Italian Government, having lately again taken up the question of cotton cultivation, has principally turned its attention to some leading points, and first of all to *the capability of Italy to produce cotton, both as regards the land and manual labour.*

The provinces of Italy that lie south of 43° N. lat., embracing a surface of country of 380,350 square miles, and containing a population of upwards of 10,000,000 inhabitants, are included in the zone of cotton cultivation in Italy. All the land in this zone which does not rise more than 500 feet above the sea level, and is not more than 34 miles distant from the shore, especially if it has a southern or eastern aspect, is adapted to this cultivation. At least 5,434,000 acres in this vast zone is capable of producing cotton.

Cotton cultivation is carried on in Italy on a tolerably good principle. From the numerous data that we have collected from all the provinces, it results that the average produce of an English acre of land is 320 to 500 lbs. of cleaned cotton.

We know that the average produce of cotton in America is little above 300 lbs. per acre, and in India 70 lbs.

It is considered in Italy that the average produce of cotton, with an improved system of farming throughout the country, might be much increased.

If only the fifth part of the land suited now to the cultivation of cotton in Italy should be effectually cultivated, it would produce about 1,000,000 bales of cotton. Neither would this cultivation interfere very materially with the present agriculture of Italy, because there is abundance of land now almost abandoned, especially in the south and in the islands, which, with proper drainage, would be eminently adapted to the cultivation of cotton.

From what I know, in the provinces of the mainland alone, there are nearly 2,000,000 acres of waste land, that could be very easily reclaimed, and that, turned to the cultivation of cotton, could produce two other millions of bales.

A great extent of this land, especially in Calabria, Basilicata, Puglia, Salerno, and Sicily, is rented very low. The low price of this land is the result of the misrule that for so many centuries has completely crushed all enterprise in Southern Italy. There is not a single river embanked, not a stream turned to the advantage of irrigation; there are no roads; the ancient harbours have been choked up. That beautiful country once so flourishing and civilized, under the name of Magna Grecia, has been for centuries deserted.

The new Italian Government is very desirous to improve this country. The railway from Turin to Ancona, already opened, is being pushed forward through this country. The section from Ancona to Pescara will be opened in a couple of months, and that from Pescara to Foggia very likely before the end of the year. From Foggia to Brindisi and Otranto the line will be completed in two years and a-half. In the line from Bari to Taranto, and from Taranto to Roseto, bordering on the Ionian Sea, they are at work at different points; so in the Sicilian lines from Messina to Syracuse, from Catania to Palermo, Girgenti and Licata.

The railway from Naples to Rome is just completed, and so is that from Naples to Salerno, which in a few months will reach Eboli.

All these railways will pass through the land suited to the cultivation of cotton.

The Government is promoting simultaneously the construction of roads, and has turned its attention to the harbours. In a short time Bari and Brindisi will be efficient ports for every purpose.

These great public works cannot fail to promote the immediate progress of agriculture and the cultivation of cotton in Italy.

The rural population is very numerous and their wages very low. The wages of a good farm labourer rarely exceed 10*d.* or 1*s.* per diem. So that there is no limit either for extent of land or for abundance of manual labour, to the production of cotton in Italy.

*Another point we were anxious to ascertain was the minimum price at which cotton could be cultivated in Italy.*

A large mass of data was collected accurately from the various provinces of Italy, which I am sorry that, for want of space, I cannot submit in detail to the Society; permit me to assert *that as long as the price of cotton does not fall lower than 4d. per pound, cotton may be cultivated with benefit in Italy*, and compete with many of the staple agricultural products of the country. One hectare of land cultivated with cotton even at 4d., will give to the cultivator a net return of more than 180 francs, which he is very far from obtaining from other produce in a great many provinces of the country.

According to the best authorities, it is said that in America cotton cannot be produced at a lower price than 4d. per lb. Therefore, even if America should reassume the position that she had before the war, as regards the cotton trade, this cultivation might be profitably carried on in Italy.

The last point which the Italian Government were anxious to ascertain was, *whether the quality of the cotton already cultivated in Italy was such as would command a sale in the principal cotton markets*. To ascertain this point we took advantage of the International Exhibition. The Italian Government collected as many samples of cotton from different localities as possible, and sent them to the Exhibition.

As Royal Commissioner for Italy, in the month of June I submitted to the Committee of the Manchester Cotton Supply Association the various samples of Italian cotton exhibited. The Cotton Supply Association deputed a member of their committee, Mr. W. Wanklyn, to come to London and examine the samples in the International Exhibition.

Of fifty-six samples of Italian cotton, Mr. Wanklyn valued eleven at the same or higher price than fair New Orleans; more than half of the samples, namely twenty-nine, at the same price, or even higher, than the middling New Orleans; forty-four at the same price, or higher price, than good ordinary New Orleans, and only one, the worst, at a price equal to the choicest qualities of East India cotton.

On the 6th of January, I went to Manchester, and submitted to the Committee of the Cotton Supply Association, fifty or sixty samples of Italian cotton. After accurate examination, the Committee passed a resolution that I shall beg your permission to transcribe.

Resolved—

“That the Committee of this Association having examined the collection of  
“samples of cotton, grown in Italy, and submitted from the Royal Italian  
“Commissioner, is of opinion that they are a good useful class of cottons,  
“some of them indeed being superior to middling American, but with  
“careful cultivation and cleaning, the aggregate production of Italian  
“cotton may be rendered equally as desirable.”

It will not, perhaps, be without utility to state what may be reasonably expected from Italy *this year*. Some provinces of Italy where cotton may be cultivated, are unhappily afflicted by brigandage. I hope that there will soon be an end of it, as the Government has taken very strong measures to put it down. But there are a great many provinces perfectly quiet, and which have never been in the slightest degree disturbed. These are the provinces of Calabria, Sicily, and the island of Sardinia. I am convinced that the Government will do everything to promote this cultivation of cotton. There is a great quantity of land prepared for other cultivation, and especially for Indian corn, that would be immediately cultivated with cotton to more advantage this very year. There are plenty of landed proprietors who are preparing to cultivate cotton. There is a large field for private enterprise, and there is no new country that could give this year so much cotton as Italy.

To recapitulate, we have seen that there is in Italy, plenty of cheap land and manual labour, with good method of cultivation and good quality of cotton.

I must apologize for having trespassed so much upon your space, but I thought it was well to call your attention to an extensive cotton field in Europe, only about 80 to 100 hours distant from London.

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*On the RATE of MORTALITY prevailing amongst the FAMILIES of the PEERAGE during the NINETEENTH CENTURY. By ARTHUR HUTCHESON BAILEY, Actuary of the Equity and Law Assurance Society, and Fellow of the Institute of Actuaries; and ARCHIBALD DAY, Actuary of the London and Provincial Law Assurance Society, and Fellow of the Institute of Actuaries.*

[From the "Assurance Magazine and Journal of the Institute of Actuaries," vol. ix, part 6, July, 1861.]

IN a note in the introduction to Milne's "Treatise on Annuities," the author remarks—"There can, I think be no doubt but that the "mortality is greater among the higher than the middle classes of "society. They form too small a proportion of the population to "have any sensible effect here; but it would be of importance to the "Life Offices to determine the law of mortality among them." Since the publication of this work, forty-six years ago, some attempts have been made to test the accuracy of this assertion, and to supply the desideratum; but none with which we are acquainted are by any means conclusive.

In a tract, privately printed in the year 1832, entitled, "Observations on the Mortalities among the Members of the British Peerage," by the late Mr. George Farren, the author investigates the average duration of the enjoyment of the title by each peer, from observations made in 740 cases. Out of these, the ages are stated to have been recorded in 447 instances,—of which 288 succeeded to the title between the ages of 10 and 40; from which the conclusion was deduced (and this is the only result stated), that at the age of 25, the mean duration of life of the peers is very nearly 32 years, which corresponds with the mean duration by the Carlisle Table, at the age eight years older. The process adopted is not stated; but, independently of this and other objections, it will probably be considered that the number of facts observed was too small to warrant any general conclusions on the subject.

Mr. Edmonds contributed to the "Lancet" of the 10th February, 1838, and the 9th March, 1839, two papers—on the "Duration of "Life in the English Peerage," and on the "Lineage of English "Peers." His observations—extending, apparently, over a long interval of time—were made on 675 peers (32, whose deaths were violent or accidental, having been excluded), during the period of

their possession of the title only. These 675 peers were the representatives of 109 titles, the first and last peer in the line of succession having been omitted. In 243 cases the ages were not stated, and this defect was supplied by an approximation made by observing the recorded dates of birth of other peers in the same line of descent. The results are given in three tables, from which it appears that the mortality among the peers is very much in excess of that of the Carlisle Table, but corresponds pretty nearly with a theoretical table constructed by Mr. Edmonds himself, which he designates "City Mortality," according to which the mortality at every age is 50 per cent. greater than in the Carlisle Table. The process by which these results are arrived at is nowhere stated, so that any verification of them is impossible. The number of facts seems to us altogether insufficient, and has been needlessly diminished by the exclusion of the first peer and the existing peer of every title, apparently for no other reason than that they were not required for another investigation which Mr. Edmonds had then in progress. The proportion of cases in which the ages were not recorded is very large—36 per cent. of the whole number; and the hypothetical method adopted for supplying this defect is, we think, open to considerable objection, especially as Mr. Edmonds seems to imply that had he carried out his original intention of deducing the mortality from those peers only whose ages were recorded, the results would have been different. Also, the probable effect of confining the observations to the period of the occupancy of the title only, will have been, if hereditary tendencies had their usual influence, to exaggerate the mortality of the younger ages, because the peers who succeeded to the title when young must as a general rule, have been the sons of short lived parents, and they would not enter into combination for several years with the sons of the long-lived parents, as the latter, for the most part, would not have succeeded to the title until older ages had been attained. Moreover, Mr. Edmonds's plan excludes altogether female and infant mortality, and takes but little account of that of the periods of childhood and youth. For these reasons, we cannot consider his investigations satisfactory or sufficient.

More recently, Dr. Guy made some observations on a much greater number of facts, the results of which he embodied in two papers read before the Statistical Society, and published in their *Journal* for March, 1845, and March, 1846. Dr. Guy's process is very clearly stated, and is sufficiently simple. He extracted from a Peerage and Baronetage in his possession the ages at death of 2,291 male lives who died above the age of 21 in a period of time extending from the thirteenth century to the year 1830, and having obtained the number of deaths at each age, a table of the mean



duration of life was calculated from these materials. The result—somewhat unexpected, Dr. Guy says—being, that the mean duration of life among these classes is nowhere greater, and at all ages under 70 is materially less, than among the general male population of the country. Entertaining, as we do, a very sincere respect for Dr. Guy's scientific attainments, we cannot, at the same time, avoid remarking that his investigations upon the subject of mortality are unsatisfactory; all his observations having been made on the ages at death only, without any regard to the numbers living. This is not a fitting opportunity, nor can it be necessary here, to enlarge on this point. That observations made from deaths alone will always give erroneous results of the mortality, except in the case of a stationary population, is well known to all who have studied the subject: those who have not may consult Milne's article in the "Encyclopædia Britannica" on "Mortality," and the 5th and 6th Annual Reports, with the Appendices, of the Registrar-General.

The results obtained by Dr. Guy have frequently been quoted both in newspapers and scientific publications—among others, by Mr. Neison, in his "Contributions to Vital Statistics"—and reasons attempted to be assigned for the conclusions arrived at. Now, as it is certain that, whether Dr. Guy's conclusions are correct or not, they cannot be deduced from the facts which he collected, and not being satisfied with the investigations of his predecessors in the same path, we resolved to undertake the not inconsiderable labour of determining the mortality prevailing among the families of the peerage by proper technical methods, tracing each case through every year of the period of observation, and comparing the number of deaths with the number of living in each year of age.

## II.

Before commencing this task, however, the question arose—what reliance could be placed upon the accuracy of the peerage books? Having made some inquiries on this matter, we are informed, on good authority, that the process of their compilation is some such as the following:—The editors glean from the newspapers, from time to time, occurrences in the way of births, deaths, and marriages, and make the necessary alterations in the current editions of their works. A proof is then sent annually to each peer of the portion relating to his own family, with a request that he will be good enough to correct and return it. And although the proofs are not all returned annually, the editors express the utmost confidence that, except in a few instances, communications are always made to them whenever corrections are required, and that the several dates are accurately recorded. Having satisfied ourselves upon this important point, the next matter was to select which of

the different Peerages should be made use of. The first at hand that of Burke, was quickly discarded. With a chivalrous spirit, worthy of the Ulster King-at-Arms, he invariably omits the dates of birth of the ladies; and his work, therefore, although probably well adapted for general circulation, was altogether unsuited for our purpose. We then turned to "Lodge's Peerage;" here the facts we required were fully and clearly given, even the still-born births being accurately recorded, and the only objection was, that it did not extend sufficiently far back in point of time. To remedy this, recourse was had to an older Peerage by Debrett; and from these two sources, with occasional reference to Burke, in cases of doubt or discrepancy, all the necessary information was obtained.

We had then to consider what should be the limits of our investigation. To have extended our researches back to distant generations would have been objectionable, because, as an impression commonly prevails that the rate of mortality has progressively improved, comparisons with other tables derived from modern data might have been considered inadmissible. Also, had we followed Mr. Farren and Mr. Edmonds, in restricting the observations to peers only, the number of facts would, in our judgment, have been insufficient, independently of other objections. On the other hand, had we included all the collateral branches, the distinctive features of the class would have been lost. We therefore determined, that the observations should be limited in point of time to the present century, and should be made upon peers, sons and daughters of peers, and sons and daughters of the eldest sons of peers.

The observations commence with the anniversary of the date of birth in the year 1800 of those who were born in the last century, and with the actual date of birth for the remainder, and terminate on the 31st December, 1855; the only assumption introduced being, that when, as it occasionally happened, the year only of birth or death was given, the day being omitted, this latter was taken to be the 30th June. Those cases were altogether excluded in which the year of birth was not recorded. The number of facts obtained was as follows, viz.:—

	Males.	Females.	Both Sexes.
Deaths .....	1,938	1,253	3,191
Existing, 31st December, 1855 ....	2,283	1,999	4,282
Totals .....	4,221	3,252	7,473



When it is considered that the data from which the Carlisle Table of Mortality, which is probably the one in most general use, was derived, were two enumerations, made at an interval of about nine years, of 7,677 persons living on the first occasion, and 8,677 on the second; that the number of deaths was 1,840; and the ages obtained merely from information voluntarily given, we hope that in regard to time, numbers, and accuracy, the present materials may possess some value.

The extracts having been made separately for each sex, and afterwards combined, the results will be found in Tables I, II, and III, which are sufficiently explained by the headings of the columns. The only remarks needed being, that the number exposed to the risk was obtained by subtracting from the number who completed the age half of the number existing on the 31st December, 1855—that, as was unavoidable, the numbers at the oldest ages were somewhat arbitrarily dealt with—and that the mean duration of life was computed by means of the equation—

$$\text{Log. } e_x = \text{log. } p_x + \text{log. } (1 + e_{x+1}),$$

Where  $e_x$  represents the curtate mean duration at the age  $x$ . All the processes, both of making the extracts and the computations, were performed by each of us independently of the other.

As was to have been expected, the column representing the annual mortality exhibits numerous irregularities, but we have purposely abstained from applying any method of graduation. Indispensable as this process is for many applications of tables of mortality, and great as has been the ingenuity expended upon it, the process itself can only be regarded as a necessary evil; and, without going so far as to say, with Professor De Morgan, that “the practice cannot be too strongly condemned,” the force of his remark, that, “the tables thereby lose some of their value as representations of physical facts,” is undeniable. And as the process was neither necessary nor desirable for one of the chief objects of this investigation—the comparison of the results with those of other tables—we have preferred to leave the observations unadjusted.

Examples of these results, compared with those of other tables of authority, will be found in Tables IV, V, and VI. The observations selected for comparison have been—of male lives exclusively, the English Life Table, representing the mortality of the population in general; the experience of the Equitable Society (chiefly males); that of the Government Annuitants, from Mr. Alexander Finlaison’s recent Report; and the mortality of healthy districts, from a paper by Dr. Farr, lately read before the Royal Society. The latter, having been derived from the records of sixty-three districts of the country

where the average annual mortality in 1,000 did not exceed 17, the general average being 22, is considered by Dr. Farr to be "the nearest approximation we can obtain to a table representing the human race in the normal state." For female lives exclusively, we have selected for comparison the corresponding tables of the English Life Table, the Government Annuity-tables, and the healthy districts; and for both sexes combined, the Carlisle Table, and the general table of the healthy districts.

### III.

Referring first to *Male lives only*, it will be found that the average mean duration of life among the families of the peerage is, at all ages under 73, *greater* than among the general population of the country, greater even than among the selected lives of the Equitable Society, (with the unimportant exception of the period from 15 to 21, where the number of cases in that Society was very small); greater, at all ages under 62, than among the Government annuity-tables; and throughout, approaches pretty nearly to the standard table of the mortality of the healthy districts. At the older ages, it very nearly coincides both with the English Life Table and the Equitable experience, but is somewhat less than that of the Government annuity-tables. Looking to particular periods of life, it will be observed that the advantage in favour of the families of the peerage is most remarkable in infancy and childhood—the mortality under the age of 10 years being little more than one-third of that of the general population. In the next decade, the two tables nearly coincide; but at the succeeding period from 20 to 29, a very singular anomaly occurs. There the mortality among the families of the peerage is not only in excess of that of the English and Equitable Tables, but, contrary to our previous notions, is also materially greater than in the next decennial interval. A similar anomaly occurs in the Government annuity-tables, and also in the Society of Friends.\* At all other ages, up to 80, the advantage is with the aristocratic class.

It is evident, therefore, that Dr. Guy's conclusions on this subject are erroneous; and to make this more clear, we have thought it worth while to compute a table of the mean duration of life, deduced from the deaths alone, in the present observations, and have placed some examples of it in juxtaposition with the corresponding results deduced by the correct method, and also by Dr. Guy.

\* In this Society, the annual mortality per cent. among the males has been found to be at the ages 20–29, .881; and at the ages 30–39, .782. Our information on the subject is derived from a most complete and interesting paper "On the Vital Statistics of the Society of Friends," by Joseph John Fox, read before the Statistical Society, 21st December, 1858.



Males.—Peerage Families.

Age.	Mean Duration of Life.	Do. deduced from the Deaths only.	
		Present Observations.	Dr. Guy.
20 .....	41·46	36·42	38·48
30 .....	33·51	31·63	30·88
40 .....	28·33	25·36	24·45
50 .....	21·40	19·38	17·92
60 .....	14·56	13·27	12·57
70 .....	8·77	8·03	8·15
80 .....	4·58	4·20	5·09

The above table is, we think, deserving of some attention—partly because the erroneous method of observation is very common with the medical profession; and partly, because the results of such observations are received with implicit confidence in some quarters where it could least have been expected.

IV.

Turning next to the tables for *Female life exclusively*, it will be observed that the average mean duration of life among the families of the peerage is, throughout *materially greater* than with the general population, coincides in a very remarkable manner, up to the age of 55, with that of the Government annuitants, and also of the inhabitants of the healthy districts, but surpasses them both for the remainder of life—indicating a more favourable mortality at the older ages than any table whatever with which we are acquainted. It will be seen that, as with the males, the contrast with the general population is most marked under the age of 10, but that in the next decade the mortality is somewhat in excess; the abnormal feature noticed in the males thus appearing among the females, but not to so great an extent, and occurring at a somewhat earlier period of life. The singularly favourable mortality above the age of 70 will not escape attention.

We believe that no previous attempt has been made to investigate the mortality prevailing among females of the higher classes in this country, and are not without hope that the present one may, owing to the trustworthiness of the data, help to elucidate the subject of female mortality generally. The known difficulty of obtaining accurate information on so delicate a subject as ladies' ages has, undoubtedly tended to throw some degree of suspicion upon all results obtained from any general records of the female population. Even the compilers of the Census of 1851, laudably eager as they are

to break a lance in defence of the veracity of their countrywomen, were reluctantly compelled to admit that this part of the returns required some awkward and troublesome corrections, and cited the case of an eminent French statist, who after many persevering but fruitless attempts, had abandoned in despair a philosophical inquiry which had for its object to determine the ages of his wife and his cook.

Table VII will illustrate the comparative mortality of the sexes. As this is a subject of some interest, and as the evidence respecting it is conflicting, we have thought it deserving of some further examination.

The superior longevity of the Female sex having long been well known, one of the most striking results of the combined experience of the Assurance Offices was that the mortality amongst assured females was greater than amongst assured males. Several explanations of this apparent anomaly have been offered, none of them very satisfactory, and some altogether absurd; but, after a careful consideration of the matter, we cannot help thinking that the anomaly does not really exist at all. According to Dr. Farr's Tables, the mortality in the period of infancy is greater among boys than girls, from 2 to 40 years of age the mortality of females is in excess, while for the remainder of life the females have the advantage over the males in a marked degree. And we find that the remarkable tenacity of female life in old age so far outweighs the greater mortality of the sex shortly before and during the childbearing period, as to give to the female sex an average mean duration of life greater than that of the male throughout the whole of the table. These results the present observations confirm in every respect—they exhibit the superior vitality of *Females in infancy*, their remarkable tenacity of life in old age, and their greater mortality in youth and the prime of life; for notwithstanding the abnormal mortality of males between the ages of 20 and 30, it will be found that, taking the entire period from 5 to 45 years of age, the female mortality is in excess. Bearing these peculiarities in mind, it was certainly somewhat startling to find on referring to the Combined Experience Tables, that the female mortality in the decade 70–79 was both so great absolutely, and so much in excess of the male, especially as between the ages of 45 and 70 the female mortality is less. But on looking more closely, and remarking that the objection often urged, that these tables represent the experience not of lives but of policies, is serious when the numbers are small, though not, perhaps, very important when they are large, we discover that the whole number of claims above the age of 70, under policies on female lives, in all the combined Offices, was exactly 60, and only 477 at all ages. And the actuaries themselves assign the paucity of the numbers as a reason for the apparent excess of the female mortality at the older ages,



admitting that no importance is to be attached to this result. But as the facts were avowedly insufficient to bring out the peculiar tenacity of life of the female sex in old age, the result is perfectly consistent with other observations. Instead, therefore, of asserting that the "mortality amongst assured females, taking all ages together, is greater than amongst assured males," we think a more accurate statement would have been, that the experience of the Offices confirms the result of other observations, which show the greater mortality of females during the childbearing period, and affording little or no information for the periods of infancy and old age, it did not possess the means of exhibiting the general mortality of the sex. In corroboration of this may be adduced the valuable information furnished by the experience, of the Eagle Office, where the number of female deaths exceeded those of all the combined Offices. In the experience of the Eagle, the female mortality was lower than the male taking all ages together; while, at the same time, under the age of 42, it was considerably in excess. And it must not be forgotten that the average period of observation of each life, although greater than with the combined Offices, did not exceed  $8\frac{1}{2}$  years; so that there is reason to believe that, if the observations were continued to the present time, the greater general vitality of the female sex would be still more apparent.

On the other hand, the late Mr. Finlaison, whose experience and authority on this subject were very great, stoutly contended that "the fact is undoubtedly certain, that the mortality of the *female sex*, at every period of life, is less than that of the male sex "at the same ages, excepting only in infancy," and supported this assertion by numerous tables deduced from observations made on the nominees of certain tontines, and also on the Government annuitants from 1808 to 1825. These observations have been continued to the 31st December, 1850, by Mr Alexander Finlaison, and the results have been recently published in a report by that gentleman. The later results confirming, in this particular, the former observations, Mr. Alexander Finlaison appears to consider that his father's views are now unimpeachable, and form a standard by which the accuracy of other tables may be tested. Applying this test to the English Life Table, he makes the following remarks:—"At the youthful and earlier adult ages, the mortality of the female "is represented to be greater than that of the male. This conclusion "is contrary to most previous experience. It is a result which is "also contrary to nature. The sexes are not created in equal "numbers. For every twenty females there are produced twenty-one "males. But no fact is more thoroughly established, than that when- "ever the population is counted the females are present in consider- "ably greater number. . . . Such a result could not take place

“ unless the stronger sex were subjected to a higher rate of mortality, “ died off much faster than the females.”

From these observations we must express our dissent. Dr. Farr's conclusion is not contrary to most previous experience. Not only in the English Life Table, but also in the observations on the inhabitants of the healthy districts, on assured lives, and on the Society of Friends, the mortality of the female in the youthful and earlier adult ages is found to be greater than that of the male ; and in *every* published table of mortality to which we have been able to refer, excepting only Mr. Finlaison's and the Swedish Tables, the mortality of the female is, at particular ages, in excess of that of the male. The peculiarity of Mr. Finlaison's results may, perhaps, be accounted for by the probability that a large proportion of the females in his observations are unmarried, and by the scantiness of his materials in middle life compared with their abundance at the older ages.

The English Life Table is not contrary to nature ; for, concurrently with the greater mortality of the female at particular ages, we almost invariably observe a greater general mortality of the male. The two circumstances—the excess of male births and the greater general mortality of that sex—together cause that nearly uniform proportion of the sexes which successive enumerations disclose.

How far the long and elaborate attack on the English Life Table in Mr. Alexander Finlaison's report is consistent with the official etiquette usually observed by different departments of the State towards each other, we do not presume to determine. If the National Debt Office and the General Register Office are at variance, assuredly *non nostrum est tantas componere lites*. We only endeavour, amongst conflicting statements, to search for the truth ; and the result of our inquiries on this particular subject—the comparative mortality of the sexes—has been to confirm the views of Dr. Farr, and not those of Mr. Finlaison. On the whole, if human life be divided into three great periods—of infancy, maturity, and old age—the weight of evidence is in favour of the general conclusions, that, at the two extremes, the mortality of the female sex is less, and at the intervening period greater than that of the male ; the probable after-lifetime being at all ages, greater for the female.

The examples of the general table of Mortality of the families of the Peerage will suffice to dispel the previous views that have been propounded on the subject, and remove the erroneous ideas into which even so judicious and accomplished a writer as Milne has fallen, and which led Mr. Edmonds to make the unfounded assertion that “ the severest mortality is to be looked for in the poorest class, “ of a city population, and in the highest class of the moneyed or non- “ labouring portion of the community.” It will be observed that the



mean duration of life among the families of the Peerage approaches nearly to that in Dr. Farr's standard table, and, with one slight exception, is throughout greater than in the Carlisle Table. This exception occurs about the age of 80, and may be readily explained by the circumstance, that in the population of Carlisle, from which the mortality table was framed, the females were about 55 per cent. of the whole number—a much greater proportion than occurs in the general population. In our observations, on the contrary, the males outnumber the females—a greater number of cases in the latter sex having to be rejected owing to deficiency of dates. Had it not been for this circumstance, the results of the general table would have proved even more favourable.

The peculiar features of the mortality at different periods of life have already been sufficiently discussed.

## V.

One or two remarks on the application that may be made of the results of the present investigation, in the occupations in which most of us are engaged, may not be considered inappropriate. Adopting the common division of the different ranks of society—into upper, middle, and lower classes—it may be safely stated that the latter, although forming the great bulk of the community, have hardly any dealings with Life Offices. And we are inclined to think that the somewhat heterogeneous mass called the middle class does not resort to these Offices to the same extent, in proportion to its number, as the higher classes. It is, we are aware, a popular belief, that the extent of the practice of life assurance in this country affords strong evidence of the provident habits of the community, and that the success of the Offices in Great Britain is attributable to the greater degree of prudence and forethought prevailing here than among the nations of the Continent. But some of those who have had the most experience in the matter would probably be of opinion that the practice of life assurance affords quite as much evidence of improvident as of provident habits; that the Offices obtain as many supporters from those who exceed as from those who live within their incomes; and that their success is attributable, in no slight degree, to the extent to which the practice of making settlements of property prevails in this country, and to the consequent number and variety of life interests of a pecuniary nature arising therefrom. However this may be, there can be no doubt that those who are beneficially interested in these settlements, but, at the same time, have not usually much ready money at command (a description not unfrequently applicable to the class now under observation), are introduced to the Assurance Offices in considerable numbers. It cannot, therefore, be otherwise than satisfactory to find that the mortality

prevailing among the class in question is decidedly more favourable than any which the experience of the Offices has yet furnished.

The present investigation also indicates that the effect expected to be produced by selection of lives is much exaggerated; at the same time it confirms an opinion occasionally expressed, and which seems to be founded on experience, that the best lives are those that are assured for large amounts.

It may, perhaps, be of some service in a department of our practice which urgently requires amendment—the system upon which extra premiums for foreign residence are charged. The male lives that have formed the subject of the present investigation have been found to experience an unusually favourable mortality; yet they enter the army and navy in large numbers, travel extensively, and are certainly more exposed to what the Assurance Offices consider extra risks, than the middle classes. It would seem, therefore, to be no unfair inference, that differences of climate have less effect on human mortality than differences of occupation and position in life; and as the Offices do not attach much importance to the latter—taking a butcher and a country clergyman on similar terms—they might perhaps relax somewhat in their estimate of the former. Considering the very unsatisfactory character of the present practice in this respect, it might be worth consideration whether any serious risk would be incurred by dispensing altogether, in the majority of cases, with the existing restrictions on foreign travelling and residence.

On the other hand, the results of this investigation afford some suggestions for the exercise of caution. The most painful comparison presented by the present tables is the remarkable difference in the mortality of the *children* when contrasted with the general population. Now, as it may be tolerably safely assumed that all children for whom endowments are purchased will be well cared for, it would seem that both the Carlisle and English Tables are unsafe data for the calculation of Endowment premiums.

The exceptional mortality also of the period of *early manhood* confirmed as it is by the experience both of the Government annuitants and of the Society of Friends, indicates that those assurances are not the most desirable that are effected under the age of 30 for *terms of years*, on an increasing scale of premium, or on that most inconsistent and odious method called the “half credit system.” The same circumstance will perhaps explain why, in the Economic Office, it has been found that the highest rate of mortality has been experienced on term assurances.

The information obtained upon the comparative mortality of the sexes leads to the conclusions, that tables of mortality for all purposes of life assurance should be derived from observations on *male* lives chiefly, or exclusively; that the greater vitality of the *female*



will not justify any reduction of premium in contracts of assurance, because, on account of the large proportion of policies that are suffered to lapse, the greatest amount of risk will usually be incurred in middle life, at which particular period the female mortality is greater than the male. On the other hand, the distinction of sex is of serious moment in all contracts of annuities, immediate, deferred, and contingent; because in those cases the most important period is that of old age, where the distinction between the mortality of the sexes is most marked. The distinction is also important in another branch of our pursuits, where we believe, it is frequently overlooked—we mean in the valuation of reversionary interests.

Finally, if this investigation should tend to encourage the belief that the mortality of each well-defined class has peculiar characteristics of its own, it must weaken the hold that the Carlisle Table has upon some of its votaries, who seem to consider that for all purposes, and under all circumstances, their favourite table is applicable. A consideration of the characteristic features, both of these and of other observations on persons in affluent circumstances, may suggest to another class of enthusiasts, that there are many other causes affecting the mortality of mankind besides the sanitary condition of their habitations; and that although ventilation, drainage, and water supply are all very necessary things, they are not “all the law and the prophets” notwithstanding. That the peculiar features of the present observations belong to the normal law of mortality of the human race, it would, we think, be very unwise either to affirm or deny. Notwithstanding all that has been written on that subject we remain of opinion that that law is yet undiscovered, and that a much greater number and variety of observations than we at present possess will be required for its discovery. Such a law, if discovered, would be of high interest, both to the physiologist and the mathematician. But it will represent the law that really prevails among the living, moving, thinking men that inhabit the earth, much in the same way that the statue of the Apollo Belvedere represents their bodily form. Such a law will never supersede, in our pursuits at least, the exercise of that careful judgment and sound discrimination which it should be our study to cultivate, and without which the most varied talents will be useless and the greatest attainments vain.

TABLE I.—*Males.*

Age ( <i>x</i> ).	Completed the Age <i>x</i> .	Existing 31 Dec., 1855, between the Ages <i>x</i> and <i>x</i> + 1.	Died between the Ages <i>x</i> and <i>x</i> + 1.	Number Exposed to the Risk from the Age <i>x</i> to <i>x</i> + 1.	Pro- bability of Dying in the Year.	Pro- bability of Surviving the Year.	Mean Duration of Life.
0.....	2534	31	197	2518·5	·07821	·92179	52·00
1.....	2358	38	38	2339·0	·01625	·98375	55·37
2.....	2326	27	20	2312·5	·00865	·99135	55·25
3.....	2328	42	9	2307·0	·00390	·99610	54·73
4.....	2315	42	10	2294·0	·00436	·99564	53·93
5.....	2302	27	11	2288·5	·00481	·99519	53·16
6.....	2293	45	4	2270·5	·00176	·99824	52·42
7.....	2276	34	6	2259·0	·00266	·99734	51·51
8.....	2271	49	10	2246·5	·00445	·99555	50·66
9.....	2250	30	8	2235·0	·00358	·99642	49·88
10.....	2249	42	9	2228·0	·00404	·99596	49·04
11.....	2238	36	13	2220·0	·00586	·99414	48·23
12.....	2230	26	8	2217·0	·00361	·99639	47·52
13.....	2231	28	11	2217·0	·00496	·99504	46·68
14.....	2227	36	5	2209·0	·00226	·99774	45·91
15.....	2225	34	9	2208·0	·00408	·99592	45·02
16.....	2223	33	16	2207·5	·00725	·99275	44·21
17.....	2211	30	14	2196·0	·00638	·99362	43·53
18.....	2197	27	16	2183·5	·00733	·99267	42·82
19.....	2188	36	17	2170·0	·00783	·99217	42·13
20.....	2174	48	18	2150·0	·00837	·99163	41·46
21.....	2135	42	35	2114·0	·01656	·98344	40·80
22.....	2089	32	20	2073·0	·00965	·99035	40·47
23.....	2077	31	24	2061·5	·01163	·98837	39·87
24.....	2053	36	18	2035·0	·00885	·99115	39·33
25.....	2035	31	23	2019·5	·01139	·98861	38·67
26.....	2010	38	25	1991·5	·01255	·98745	38·10
27.....	1985	24	15	1973·0	·00760	·99240	37·58
28.....	1978	40	17	1958·0	·00868	·99132	36·86
29.....	1949	27	18	1935·5	·00930	·99070	36·18
30.....	1938	36	24	1920·0	·01250	·98750	35·51
31.....	1899	35	11	1881·5	·00585	·99415	34·96
32.....	1882	30	19	1867·0	·01018	·98982	34·17
33.....	1867	34	14	1850·0	·00757	·99243	33·51
34.....	1851	31	12	1835·5	·00654	·99346	32·75
35.....	1835	26	10	1822·0	·00549	·99451	31·97
36.....	1815	33	25	1798·5	·01390	·98610	31·15
37.....	1773	49	11	1748·5	·00629	·99371	30·58
38.....	1738	31	17	1722·5	·00987	·99013	29·77
39.....	1720	28	15	1706·0	·00879	·99121	29·08
40.....	1697	30	23	1682·0	·01367	·98633	28·33
41.....	1657	36	16	1639·0	·00976	·99024	27·71
42.....	1626	26	22	1613·0	·01364	·98636	26·99
43.....	1604	37	17	1585·6	·01072	·98928	26·34
44.....	1565	38	10	1546·0	·00647	·99353	25·63
45.....	1537	39	22	1517·5	·01450	·98550	24·80



TABLE I.—Males—Contd.

Age (x).	Completed the Age x.	Existing 31 Dec., 1855, between the Ages x and x + 1.	Died between the Ages x and x + 1.	Number Exposed to the Risk from the Age x to x + 1.	Pro- bability of Dying in the Year.	Pro- bability of Surviving the Year.	Mean Duration of Life.
46.....	1489	26	22	1476·0	·01491	·98509	24·16
47.....	1464	37	19	1445·5	·01314	·98686	23·52
48.....	1419	30	19	1404·0	·01353	·98747	22·82
49.....	1385	26	17	1372·0	·01239	·98761	22·13
50.....	1355	29	21	1340·5	·01567	·98433	21·40
51.....	1317	29	18	1302·5	·01382	·98618	20·74
52.....	1280	31	15	1264·5	·01186	·98814	20·02
53.....	1244	33	21	1227·5	·01711	·98289	19·25
54.....	1201	21	27	1190·5	·02268	·97732	18·58
55.....	1161	28	19	1147·0	·01656	·98344	18·00
56.....	1128	35	24	1110·5	·02161	·97839	17·30
57.....	1074	27	11	1060·5	·01037	·98963	16·66
58.....	1042	33	27	1025·5	·02633	·97367	15·83
59.....	989	18	20	980·0	·02041	·97959	15·25
60.....	957	15	19	949·5	·02001	·97999	14·56
61.....	930	19	26	920·5	·02818	·97182	13·85
62.....	891	16	24	883·0	·02717	·97283	13·23
63.....	859	18	32	850·0	·03764	·96236	12·59
64.....	815	23	24	803·5	·02986	·97014	12·05
65.....	775	20	33	765·0	·04313	·95687	11·41
66.....	725	13	27	718·5	·03758	·96242	10·90
67.....	687	18	27	678·0	·03983	·96017	10·30
68.....	645	16	34	637·0	·05338	·94662	9·71
69.....	602	16	35	594·0	·05892	·91108	9·23
70.....	557	13	36	550·5	·06539	·93461	8·77
71.....	513	15	32	505·5	·06330	·93670	8·35
72.....	470	15	25	462·5	·05405	·94595	7·88
73.....	432	6	32	429·0	·07457	·92543	7·31
74.....	396	10	35	391·0	·08952	·91048	6·85
75.....	355	9	39	350·5	·11127	·88873	6·48
76.....	314	8	29	310·0	·09354	·90646	6·23
77.....	280	8	27	276·0	·09783	·90217	5·82
78.....	235	8	27	231·0	·11688	·88312	5·40
79.....	212	5	22	209·5	·10501	·89499	5·05
80.....	187	4	20	185·0	·10811	·89189	4·58
81.....	165	5	29	162·5	·17846	·82154	4·08
82.....	131	6	16	128·0	·12500	·87500	3·85
83.....	109	3	21	107·5	·19535	·80465	3·33
84.....	85	—	19	85·0	·22353	·77647	3·02
85.....	66	2	15	65·0	·23077	·76923	2·74
86.....	49	3	13	47·5	·27369	·72631	2·41
87.....	33	1	11	32·5	·33846	·66154	2·14
88.....	21	3	8	19·5	·41026	·58974	1·97
89.....	10	—	3	10·0	·30000	·70000	2·00
90.....	7	—	3	7·0	·42847	·57143	1·64
91.....	4	—	1	4·0	·25000	·75000	1·50
92.....	3	—	2	3·0	·66666	·33334	·83
93.....	1	1	—	·5	—	—	—

TABLE II.—*Females.*

Age ( $x$ ).	Completed the Age $x$ .	Existing 31 Dec., 1855, between the Ages $x$ and $x + 1$ .	Died between the Ages $x$ and $x + 1$ .	Number Exposed to the Risk from the Age $x$ to $x + 1$ .	Pro- bability of Dying in the Year.	Pro- bability of Surviving the Year.	Mean Duration of Life.
0.....	2152	33	127	2135·5	·05948	·94052	53·71
1.....	2029	30	33	2014·0	·01639	·98361	56·09
2.....	2003	36	14	1985·0	·00705	·99295	56·00
3.....	1987	35	11	1969·5	·00559	·99441	55·41
4.....	1979	35	11	1961·5	·00561	·99439	54·71
5.....	1963	36	5	1945·0	·00257	·99743	54·02
6.....	1945	34	11	1928·0	·00571	·99429	53·15
7.....	1926	33	11	1909·5	·00576	·99424	52·45
8.....	1912	31	8	1896·5	·00422	·99578	51·75
9.....	1901	35	7	1883·5	·00372	·99628	50·98
10.....	1889	34	16	1872·0	·00854	·99146	50·16
11.....	1861	34	18	1844·0	·00976	·99024	49·58
12.....	1835	29	11	1820·5	·00604	·99396	49·06
13.....	1834	40	4	1814·0	·00220	·99780	48·35
14.....	1822	33	12	1805·5	·00665	·99335	47·46
15.....	1813	35	8	1795·5	·00445	·99555	46·77
16.....	1794	34	10	1777·0	·00563	·99437	45·97
17.....	1776	30	20	1761·0	·01136	·98864	45·23
18.....	1745	37	11	1726·5	·00637	·99363	44·74
19.....	1722	38	18	1703·0	·01057	·98943	44·02
20.....	1698	26	12	1685·0	·00712	·99288	43·48
21.....	1679	34	12	1662·0	·00722	·99278	42·79
22.....	1656	23	11	1644·5	·00669	·99331	42·10
23.....	1643	32	16	1627·0	·00983	·99017	41·39
24.....	1621	36	14	1603·0	·00873	·99127	40·80
25.....	1596	29	14	1581·5	·00885	·99115	40·16
26.....	1575	32	11	1559·0	·00706	·99294	39·50
27.....	1560	29	13	1545·5	·00841	·99159	38·78
28.....	1538	25	18	1525·5	·01180	·98820	38·10
29.....	1518	27	11	1504·5	·00731	·99269	37·54
30.....	1495	30	9	1480·0	·00608	·99392	36·82
31.....	1479	27	12	1465·5	·00818	·99182	36·04
32.....	1461	24	13	1449·0	·00897	·99103	35·33
33.....	1434	32	18	1418·0	·01269	·98731	34·65
34.....	1405	22	10	1394·0	·00717	·99283	34·09
35.....	1383	22	20	1372·0	·01458	·98542	33·35
36.....	1358	27	10	1344·5	·00744	·99256	32·83
37.....	1335	20	12	1325·0	·00906	·99094	32·08
38.....	1315	29	11	1300·5	·00846	·99154	31·37
39.....	1287	31	12	1271·5	·00944	·99056	30·64
40.....	1257	23	20	1245·5	·01606	·98394	29·93
41.....	1225	32	13	1209·0	·01075	·98925	29·40
42.....	1190	24	8	1178·0	·00679	·99321	28·71
43.....	1164	28	16	1150·0	·01391	·98609	27·91
44.....	1123	34	15	1106·0	·01356	·98644	27·30
45.....	1079	28	13	1065·0	·01221	·98779	26·66



TABLE II.—*Females.*—*Contd.*

Age ( $x$ ).	Completed the Age $x$ .	Existing 31 Dec., 1855, between the Ages $x$ and $x + 1$ .	Died between the Ages $x$ and $x + 1$ .	Number Exposed to the Risk from the Age $x$ to $x + 1$ .	Pro- bability of Dying in the Year.	Pro- bability of Surviving the Year.	Mean Duration of Life.
46.....	1049	35	14	1031·5	·01358	·98642	25·99
47.....	1006	16	9	998·0	·00902	·99098	25·34
48.....	986	33	8	969·5	·00825	·99175	24·56
49.....	952	25	13	939·5	·01383	·98617	23·76
50.....	924	29	16	909·5	·01759	·98241	23·08
51.....	883	21	10	872·5	·01146	·98854	22·49
52.....	857	19	5	847·5	·00590	·99410	21·74
53.....	839	19	11	829·5	·01326	·98674	20·87
54.....	816	31	16	800·5	·01998	·98002	20·14
55.....	776	21	17	765·5	·02220	·97780	19·54
56.....	740	20	20	730·0	·02740	·97260	18·98
57.....	704	22	10	693·0	·01443	·98557	18·49
58.....	673	20	15	663·0	·02262	·97738	17·76
59.....	639	22	10	628·0	·01592	·98408	17·15
60.....	607	16	15	599·0	·02504	·97496	16·42
61.....	576	10	18	571·0	·03152	·96848	15·83
62.....	549	14	18	542·0	·03321	·96679	15·34
63.....	517	19	11	507·5	·02167	·97833	14·84
64.....	490	8	20	486·0	·04115	·95885	14·16
65.....	463	12	22	457·0	·04814	·95186	13·74
66.....	430	13	13	423·5	·03069	·96931	13·41
67.....	405	14	12	398·0	·03015	·96985	12·82
68.....	380	15	18	372·5	·04832	·95168	12·20
69.....	349	13	14	342·5	·04088	·95912	11·80
70.....	326	19	13	316·5	·04108	·95892	11·28
71.....	296	13	17	289·5	·05872	·94128	10·74
72.....	267	12	11	261·0	·04214	·95786	10·39
73.....	246	6	13	243·0	·05350	·94650	9·82
74.....	227	6	20	224·0	·08929	·91071	9·35
75.....	202	8	10	198·0	·05051	·95949	9·22
76.....	184	4	10	182·0	·05495	·94505	8·69
77.....	170	7	16	166·5	·09610	·90390	8·16
78.....	147	3	8	145·5	·05498	·94502	7·98
79.....	136	7	9	132·5	·06792	·93208	7·41
80.....	120	8	13	116·0	·11207	·88793	6·92
81.....	99	4	13	97·0	·13402	·86598	6·73
82.....	82	7	10	78·5	·12739	·87261	6·69
83.....	65	1	6	64·5	·09302	·90698	6·60
84.....	58	3	3	56·5	·05310	·94690	6·22
85.....	52	1	11	51·5	·21360	·78640	5·54
86.....	40	2	3	39·0	·07692	·92308	5·91
87.....	35	3	3	33·5	·08955	·91045	5·36
88.....	29	—	4	29·0	·13793	·86207	4·84
89.....	25	1	3	24·5	·12245	·87755	4·54
90.....	21	1	4	20·5	·19512	·80488	4·10

TABLE II.—*Females—Contd.*

Age ( $x$ ).	Completed the Age $x$ .	Existing 31 Dec., 1855, between the Ages $x$ and $x + 1$ .	Died between the Ages $x$ and $x + 1$ .	Number Exposed to the Risk from the Age $x$ to $x + 1$ .	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
91 ....	16	1	2	15·5	·12903	·87097	3·97
92 ....	13	2	2	12·0	·16667	·83333	3·49
93 ....	9	—	1	9·0	·11111	·88889	3·08
94 ....	8	1	2	7·5	·26667	·73333	2·41
95 ....	5	—	1	5·0	·20000	·80000	2·10
96 ....	4	2	—	3·0	·33333	·66667	1·50
97 ....	2	—	—	2·0	·50000	·50000	1·00
98 ....	2	—	—	2·0	—	—	—
99 ....	2	—	—	2·0	—	—	—
100 ....	2	—	—	2·0	—	—	—
101 ....	2	1	—	1·5	—	—	—
102 ....	1	—	—	1·0	—	—	—
103 ....	1	—	—	1·0	—	—	—
104 ....	1	1	—	·5	—	—	—

TABLE III.—*Both Sexes.*

Age ( $x$ ).	Number Exposed to the Risk from the Age $x$ to $x + 1$ .	Died between the Ages $x$ and $x + 1$ .	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
0 .....	4654·0	324	·06962	·93038	52·62
1 .....	4353·0	71	·01631	·98369	55·52
2 .....	4297·5	34	·00791	·99209	55·44
3 .....	4276·5	20	·00468	·99532	54·87
4 .....	4255·5	21	·00494	·99506	54·13
5 .....	4233·5	16	·00378	·99622	53·40
6 .....	4198·5	15	·00357	·99643	52·60
7 .....	4168·5	17	·00408	·99592	51·78
8 .....	4143·0	18	·00434	·99566	50·99
9 .....	4118·5	15	·00364	·99636	50·21
10 .....	4100·0	25	·00610	·99390	49·39
11 .....	4064·0	31	·00763	·99237	48·69
12 .....	4037·5	19	·00471	·99529	48·07
13 .....	4031·0	15	·00372	·99628	47·29
14 .....	4014·5	17	·00423	·99577	46·47
15 .....	4003·5	17	·00425	·99575	45·66
16 .....	3984·5	26	·00653	·99347	44·85
17 .....	3957·0	34	·00859	·99141	44·15
18 .....	3910·0	27	·00691	·99309	43·52
19 .....	3873·0	35	·00904	·99096	42·82
20 .....	3835·0	30	·00782	·99218	42·21



TABLE III.—*Both Sexes—Contd.*

Age (x).	Number Exposed to the Risk from the Age x to x + 1.	Died between the Ages x and x + 1.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
21 .....	3776·0	47	·01245	·98755	41·54
22 .....	3717·5	31	·00834	·99166	41·05
23 .....	3688·5	40	·01084	·98916	40·40
24 .....	3638·0	32	·00880	·99120	39·83
25 .....	3601·0	37	·01027	·98973	39·18
26 .....	3550·5	36	·01014	·98986	38·58
27 .....	3518·5	28	·00796	·99204	37·97
28 .....	3483·5	35	·01005	·98995	37·27
29 .....	3440·0	29	·00843	·99157	36·65
30 .....	3400·0	33	·00970	·99030	35·96
31 .....	3347·0	23	·00687	·99313	35·30
32 .....	3316·0	32	·00965	·99035	34·54
33 .....	3268·0	32	·00979	·99021	33·87
34 .....	3229·5	22	·00681	·99319	33·20
35 .....	3194·0	30	·00939	·99061	32·43
36 .....	3143·0	35	·01114	·98886	31·73
37 .....	3073·5	23	·00748	·99252	31·08
38 .....	3023·0	28	·00926	·99074	30·31
39 .....	2977·5	27	·00907	·99093	29·59
40 .....	2927·5	43	·01469	·98531	28·86
41 .....	2848·0	29	·01018	·98982	28·28
42 .....	2791·0	30	·01075	·98925	27·57
43 .....	2735·5	33	·01206	·98794	26·86
44 .....	2652·0	25	·00943	·99057	26·18
45 .....	2582·5	35	·01356	·98644	25·43
46 .....	2507·5	36	·01436	·98564	24·77
47 .....	2443·5	28	·01146	·98854	24·12
48 .....	2373·5	27	·01138	·98862	23·40
49 .....	2311·5	30	·01298	·98702	22·66
50 .....	2250·0	37	·01644	·98356	21·95
51 .....	2175·0	28	·01287	·98713	21·31
52 .....	2112·0	20	·00947	·99053	20·58
53 .....	2057·0	32	·01555	·98445	19·77
54 .....	1991·0	43	·02160	·97840	19·08
55 .....	1912·5	36	·01882	·98118	18·49
56 .....	1840·5	44	·02391	·97609	17·83
57 .....	1753·5	21	·01198	·98802	17·26
58 .....	1688·5	42	·02487	·97513	16·46
59 .....	1608·0	30	·01866	·88134	15·87
60 .....	1548·5	34	·02196	·99804	15·16
61 .....	1491·5	44	·02950	·97050	14·49
62 .....	1425·0	42	·02947	·97053	13·91
63 .....	1357·5	43	·03167	·96833	13·32
64 .....	1289·5	44	·03412	·96588	12·74
65 .....	1222·0	55	·04501	·95499	12·17

TABLE III.—Both Sexes—Contd.

Age ( $x$ ).	Number Exposed to the Risk from the Age $x$ to $x + 1$ .	Died between the Ages $x$ and $x + 1$ .	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
66 .....	1142.0	40	.03503	.96497	11.72
67 .....	1076.0	39	.03624	.96376	11.13
68 .....	1009.5	52	.05151	.94849	10.53
69 .....	936.5	49	.05232	.94768	10.08
70 .....	867.0	49	.05652	.94348	9.61
71 .....	795.0	49	.06163	.93837	9.15
72 .....	723.5	36	.04976	.95024	8.72
73 .....	672.0	45	.06696	.93304	8.15
74 .....	615.0	55	.08943	.91057	7.70
75 .....	548.5	49	.08934	.91066	7.41
76 .....	492.0	39	.07927	.92073	7.08
77 .....	442.5	43	.09718	.90282	6.65
78 .....	376.5	35	.09296	.90704	6.31
79 .....	342.0	31	.09064	.90936	5.91
80 .....	301.0	33	.10963	.89037	5.45
81 .....	259.5	42	.16185	.83815	5.06
82 .....	206.5	26	.12591	.87409	4.93
83 .....	172.0	27	.15698	.84302	4.57
84 .....	141.5	22	.15547	.84453	4.33
85 .....	116.5	26	.22317	.77683	4.04
86 .....	86.5	16	.18497	.81503	4.05
87 .....	66.0	14	.21212	.78788	3.86
88 .....	48.5	12	.24742	.75258	3.77
89 .....	34.5	6	.17391	.82609	3.84
90 .....	27.5	7	.25455	.74545	3.54
91 .....	19.5	3	.15385	.84615	3.58
92 .....	15.0	4	.26667	.73333	3.14
93 .....	9.5	1	.10526	.89474	3.10
94 .....	7.5	2	.26667	.73333	2.41
95 .....	5.0	1	.20000	.80000	2.10
96 .....	3.0	—	—	—	—
97 .....	2.0	—	—	—	—
98 .....	2.0	—	—	—	—
99 .....	2.0	—	—	—	—
100 .....	2.0	—	—	—	—
101 .....	1.5	—	—	—	—
102 .....	1.0	—	—	—	—
103 .....	1.0	—	—	—	—
104 .....	.5	—	—	—	—



TABLE IV.—*Males.*

Age.	MEAN DURATION OF LIFE.				
	Peerage Families.	English Table. Dr. Farr.	Equitable. Morgan.	Government Annuitants. A. G. Finlaison.	Healthy Districts. Dr. Farr.
0 .....	52·00	40·36	—	—	48·56
10 .....	49·04	47·47	48·32	45·57	51·28
20 .....	41·46	39·99	41·67	38·74	43·40
30 .....	35·51	33·21	34·53	33·39	36·45
40 .....	28·33	26·46	27·40	27·12	29·29
50 .....	21·40	19·87	20·36	20·53	22·03
60 .....	14·56	13·60	13·91	14·41	15·06
70 .....	8·77	8·55	8·70	9·08	9·37
80 .....	4·58	4·97	4·75	5·22	5·37
90 .....	1·64	2·80	2·56	2·78	2·99

Age.	ANNUAL MORTALITY PER CENT.			
	Peerage Families.	English Table. Dr. Farr.	Equitable. Morgan.	Government Annuitants. A. G. Finlaison.
Under 5 ....	2·227	7·072	—	—
5 to 9 ....	·345	·926	—	·718
10—19 ....	·536	·581	—	·742
20—29 ....	1·046	·882	·749	1·315
30—39 ....	·870	1·094	·928	1·216
40—49 ....	1·227	1·487	1·243	1·368
50—59 ....	1·764	2·275	2·111	2·269
60—69 ....	3·757	4·654	4·304	3·971
70—79 ....	8·714	10·012	8·994	8·685
80—89 ....	23·836	21·786	20·786	18·600

TABLE V.—*Females.*

Age.	MEAN DURATION OF LIFE.			
	Peerage Families.	English Table. Dr. Farr.	Government Annuitants. A. G. Finlaison.	Healthy Districts. Dr. Farr.
0 .....	53·71	42·04	—	49·45
10 .....	50·16	47·86	50·07	50·88
20 .....	43·48	40·65	43·27	43·50
30 .....	36·82	34·06	36·65	36·85
40 .....	29·93	27·50	29·91	30·00
50 .....	23·08	20·84	22·99	22·87
60 .....	16·42	14·49	16·17	15·69
70 .....	11·28	9·12	10·14	9·85
80 .....	6·92	5·34	5·69	5·64
90 .....	4·10	3·09	2·94	3·11

TABLE V.—*Females—Contd.*

Age.	ANNUAL MORTALITY PER CENT.		
	Peerage Families.	English Table. Dr. Farr.	Government Annuitants. A. G. Finlaison.
Under 5 ...	1·882	6·037	—
5 to 9 ...	·440	·900	·668
10—19 ...	·716	·639	·648
20—29 ...	·830	·917	·850
30—39 ...	·921	1·120	·995
40—49 ...	1·179	1·389	1·149
50—59 ...	1·708	2·107	1·621
60—69 ...	3·508	4·079	3·063
70—79 ...	6·092	9·095	7·119
80—89 ...	11·601	19·461	16·724

TABLE VI.—*Both Sexes.*

Age.	MEAN DURATION OF LIFE.		
	Peerage Families.	Carlisle.	Healthy Districts.
0.....	52·62	38·72	49·00
10.....	49·39	48·82	51·08
20.....	42·21	41·46	43·45
30.....	35·96	34·34	36·64
40.....	28·86	27·61	29·64
50.....	21·95	21·11	22·44
60.....	15·16	14·34	15·37
70.....	9·61	9·18	9·61
80.....	5·45	5·51	5·51
90.....	3·54	3·28	3·05

Age.	ANNUAL MORTALITY PER CENT.	
	Peerage Families.	Carlisle.
Under 5 ...	2·069	7·324
5 to 9 ...	·388	1·011
10—19 ...	·617	·588
20—29 ...	·951	·761
30—39 ...	·892	1·053
40—49 ...	1·208	1·423
50—59 ...	1·742	1·863
60—69 ...	3·668	4·082
70—79 ...	7·737	8·801
80—89 ...	17·514	17·262



TABLE VII.—*Peerage Families.*

	Age.	MEAN DURATION OF LIFE.	
		Males.	Females.
	0.....	52·00	53·71
	10 .....	49·04	50·16
	20 .....	41·46	43·48
	30.....	35·51	36·82
	40.....	28·33	29·93
	50.....	21·40	23·08
	60.....	14·56	16·42
	70.....	8·77	11·28
	80.....	4·58	6·92
	90.....	1·64	4·10

	Age.	ANNUAL MORTALITY PER CENT.	
		Males.	Females.
	Under 5 ....	2·23	1·88
	5 to 9 ....	·35	·44
	10—14 ....	·41	·66
	15—19 ....	·66	·77
	20—24 ....	1·10	·79
	25—29 ....	·99	·87
	30—39 ....	·87	·92
	40—49 ....	1·23	1·18
	50—59 ....	1·76	1·71
	60—69 ....	3·76	3·51
	70—79 ....	8·71	6·09
	80—89 ....	23·84	11·60

*On the SUBJECT MATTERS and METHODS of COMPETITIVE EXAMINATIONS for the PUBLIC SERVICE. By EDWIN CHADWICK, Esq., C.B.*

[Read before Section (F), at Cambridge, October, 1862.]

THE principle of competitive examinations on an open and fair field, without favour, for junior appointments to the public service, was opened by myself, and discussed at two meetings of this section, first at Dublin and next at Leeds. It has been several times affirmed in Parliament, and has been carried into extensive practice. On the occasions to which I refer, the subject was developed as a branch of economic science, as a means of ensuring administrative efficiency, and avoiding the waste of force and public money. In that point of view we should maintain our observations on its practical applications. So far as those practical applications have proceeded, in the Indian Civil Service, and in miscellaneous services at home, the testimony of disinterested, impartial, and competent observers has been decisive. I say of disinterested observers, because most who have written and spoken against the principle, may be challenged on the score of interest or of partiality, as notorious profitters by political patronage, or expectants of it. Complaints, have indeed been made by some civil officers of the old school, whose own influence or patronage is narrowed by the application of the principle, that it has supplied men of a quality above their places, nothing being said of the notorious fact, that the old system of patronage appointments supplied men of a quality below their places, and below any places in which services were required of a quality needing payment; nothing being said either by these objectors in recognition of the fact that the places themselves, and the methods of doing business in them, require to be brought up to the capacities of more intelligent officers than have heretofore sufficed. As to the improved capacity gained for the public service by the application of the competitive principle, I may give a deal of statistical evidence. Out of an average of three hundred patronage appointed cadets at the Royal Military Academy, at Woolwich, for officers of Engineers and the Artillery, during the five years preceding the adoption of the principle of open competition for admission to the Academy, there were fifty who were after long and indulgent trial, and with a due regard to influential parents and patrons, dismissed for hopeless incapacity for the service of those scientific corps. During the five subsequent



years, which have been years of the open competitive principle, there has not been one dismissal for incapacity. Moreover, the general standard of capacity has been advanced. An eminent professor of this university, who has taught as well under the patronage as under the competitive system at that academy, declares that the quality of mind, of the average of the cadets, has been largely improved by the competition, so much so that he considers that the present average quality of mind of the cadets there,—though the sorts of attainments are different, has been brought up to the average of the first class men of this university, which of itself is a great gain. Another result, the opposite to that which was confidently predicted, by the opponents to the principle, has been that the average physical power or bodily strength, instead of being diminished, is advanced beyond the average of their predecessors. Nevertheless though this is so, there is much in the subject matter of the examinations, and in the methods of conducting them, which in view of many who have paid attention to the subject require amendment for the sake of the principle itself. I am desirous, therefore, of raising a discussion in relation to those subject matters and methods, to obtain the results of, as much as possible, of the experience of members of the university who have been engaged in the important service of testing qualifications by means of open competitive examination.

In respect to the subject matters of examination for the most important competitions, I conceive that the civil service commissioners and the members of the council of military education could not, at the outset of the system, well do otherwise than adopt, as their subject matters of examination, the generally accepted course of a liberal education as nearly as was practicable. But it is one important effect of the principle of open competition, and of the practical arrangements in connection with it, that it must bring scholastic systems and principles of education and subject matters more closely than heretofore, directly in the front of actual practice, and into harmony with the practical requirements of the country.

I may go further and say that, instead of adopting any of the accustomed academic courses, the experience of the public requirements of the service must fashion those courses to the service required. It may, however, be submitted to be for the advantage of academic institutions that it should do so. The requirements for the leading competitions—those for the scientific corps of the army and the Indian civil service have led to the extension and formation of large preparatory schools, for giving training for those public examinations, which, for myself, I should have preferred to have given by our own chief public schools. The principal of one large public school advised a friend of mine who had a son to prepare for a competitive examination, to take him to one of the special preparatory

schools in preference, as being superior in efficiency for the special purpose. I believe that those schools are of considerable and increasing comparative efficiency, for this reason, that they are themselves, by the competitive principle, put under the most direct and powerful competition with each other. Not only do the schools compete, but each master of each head of competition, competes with the teachers of that same head of competition in all the other preparatory schools. I have made inquiries of the head masters of several of these successful training schools, and I may express a confident opinion that they would all agree in the importance of ridding the competitions to the uttermost of everything necessitating or favouring cram. They would next agree that the present topics of competition are too numerous. It is true that the competitor may take up a lesser number of heads than are put forth, but practically to permit, say five heads of competition, at the same time, amounts to prescribing five. Mr. Canon Moseley, in one of his reports, adduces evidence of the general fact that as you spread the requirements wide, so you get shallower or lower results on the average in each head of competition included.

The experienced heads of preparatory schools would, I believe, further agree that it is much better for teaching, and necessary for the avoidance of cram, as I should maintain that it is better for the public or for private service—that the requirements should be narrow but deep, rather than wide and shallow. In my opinion, it is a better test of intellectual capacity for the public service, to try the power of mastering one subject thoroughly, or a few things well, than of attaining many things only moderately or passably well. We are not, however, considering the extent of the requirements generally desirable, but what shall be the subjects of competition, for you may include as many as you please of accomplishments for pass or qualifying examinations, whilst you exclude them from competition. We throw open then for consideration, the existing requirements, and consider only those to be imparted for the future. If a man has this or the other attainment, forming part of a liberal course of education, it is said to be hard to deprive him of the benefit of its estimation. We are, however, considering not what he has but what he ought to have, not what may render him an accomplished member of elegant society but what will make him a good public servant, or in private service enable him to yield a full equivalent for the pay he receives and to sustain responsibility in leading positions. We shall come to a sounder decision on these questions, if, considering of professional service for ourselves, we consider of the qualities which we may need, and for which we are prepared to pay in case of need. These will be the qualities most required for the service of the state.

Considering how we may best reduce the number of subjects of



competition, I would propose first to omit history. A man ought to know the history of his own country, it is said. Yes, but we ought not to make a range of the events and characters of some thousand years of the past, and too much of the bad, the subject of competition, at the expense of proficiency in one or other of the sciences,—the purer and the better. Moreover, history as a topic is one great field of cram, of reliance on memory, and of dodging.

The next subjects which I submit for omission are the literatures of different countries. Ought not a gentleman to be versed in polite literature, it is said? Certainly; but it is not needful that it should be the subject of competition, at the expense of proficiency in other and indisputably better and more needed subject matters of training. Literature is moreover another great field of cram and dodging examinations, giving opportunities of trick, yielding chances to the idle who have read for amusement, over the diligent, who have laboured for the serious business of life. The literatures may be left for cultivation to social influences, and to their own attractions and advantages as recreations. As tests, moreover, they are of an inferior order. These two heads, histories and literatures, being dismissed as subjects of competition, we come to those which are admitted as means of mental training and superior tests of aptitude. First in appointed order are the mathematics. It is submitted that taking them as a main test, whilst the basis of examination is made narrower, it should be made deeper or rather longer, and that double the time should be given to it, two days instead of one, four days in place of two. This would have the advantage of giving the slow but sure a fairer chance against the quick, and may be the superficial, and would render the examinations less painful to the nervous.

One opinion I find increasing in strength is that greater prominence should be given to the experimental sciences, and that indeed, for the scientific corps of the army they should be made the chief topic for competition, and of course for preparatory education. The grounds of this opinion are that mental exercises in the experimental sciences include exercises of the faculties in induction as well as in deduction;—that eminence in the pure mathematics has not been in this country, or in France, accompanied by equal eminence in the applied mathematics, or in practical science, in the public service; that the experimental scientist is non-practical;—that if it were put to a chief of engineers, or to a mechanical or eminent civil engineer in this country, which of two competitors he would choose as an assistant, the one who was eminent in pure mathematics, or the one who was eminent in the experimental sciences, the latter would from experience be the one chosen. I confess that I give a strong preference to the experimental sciences, from what I know of the failures of the French engineers, who are pre-eminent

in pure mathematics, and from what I know of the failures of pure mathematicians at home, of which I could give, and have, indeed, elsewhere given examples. As a mental exercise, I must consider that exercises in logic might well take the place of much of mathematics, and for this reason—that I find skill in clear logical examination and exposition, and arrangement of business, to be rare qualifications amongst candidates for the public service. You want some subject matters of business frequently examined and clearly arranged, and yet how few you can find who can do anything you want to have done well—you find few who can analyse and abridge evidence well. Index making requires logical analysis to do it well, yet how few really good indexes we get. But it is impossible to look at French administrative and legislative documents, or at French scientific treatises, without being struck with their logical arrangement and clearness of exposition; and we find, in almost every curriculum of a French course of superior education, logic placed in a foremost rank, and we see its influence. In olden time, when logic was more cultivated in the English universities, we may trace its influence, in legal and clerical expositions, in greater clearness of arrangement and force of exposition than we now find prevalent.

Keeping in view the general proposition that it is requisite to reduce the topics for competition, there is now presented for consideration which language, dead or living, shall be the subject of pass, or merely qualifying examinations; and which, the subject of competition as a test of qualifications for the public service? As an officer who has, in his time, had much to do with the selection of gentlemen, men of liberal education, for first-class officers, and with their subsequent direction, I answer at once that the chief competition ought now to be in the vernacular, for the following reasons:—First, the small proportion who are found to write the mother tongue well and clearly. Out of several hundred gentlemen, sons of persons of wealth, who were examined for direct commissions in the army, the majority were plucked for bad English, for bad spelling, in fact for want of a common knowledge of the mother tongue. The bad English of the despatches of generals and superior officers in the Crimean war was notorious. King's and Queen's speeches are presentable as examples of bad English. It may be pleaded that these failures were not all by children of the university. But it was a subject of observation, that the translation of the most of them, were university statutes into English sent to the university commissioners,—translations by men of high classical attainments, into English which would not have been creditable to the scholars of a poor grammar school. Mr. D'Orsey, a member of the university, has advocated the urgent necessity of the special study of English. In respect to the selection of a language as a mental exercise, the great



European philologist, Grim, prefers German to either Greek or Latin, but he prefers the English to the German. Dr. Latham and other philologists do the same. On such impartial and competent authority I would rely, making no pretensions to any of my own. Reserving the dead and foreign languages for pass, or qualifying examinations, we should reduce the heads of competition from five, including two histories of peoples, and two literatures of peoples, to the vernacular, to mathematics and to the experimental sciences, which I think would be approved by the present state of opinion on the part of those conversant with the subject, including some experienced heads of preparatory schools. By this arrangement cram would be so far reduced as to be well nigh abolished. The Duke of Cambridge and the Council of Military Education have made important advances in the direction which I advocate. They have separated the literatures from the languages, so as to enable competitors to compete in the languages alone. The results of these changes have, I believe, been such as to justify and require further advances to be made in the same direction.

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*At a MEETING of the COUNCIL of the STATISTICAL SOCIETY, held at the Rooms of the Society, 12, St. James's Square, on THURSDAY, 11th December, 1862, COLONEL SYKES, M.P., F.R.S., Vice-President, in the Chair, the following communication from WILLIAM NEWMARCH, Esq., F.R.S., was read.*

“MY acceptance of duties in one of the largest Banking Houses in the city of London, which will prevent me from attending effectively to the work which devolves on the Editor of the Statistical Society's *Journal*, and on the acting Honorary Secretary of the Society, renders it necessary for me to place in the hands of the Council my appointment to both these offices—received from them nearly six years ago.

“I do not tender this resignation without some regret, for I had become, in many ways, attached to occupations which enabled me, at least in some humble degree, to promote the progress of sound knowledge on many of the most important and interesting problems of our time.

“I have taken care that the gentleman who may be appointed to succeed me, shall not find in either of my departments of duty any arrears,—but that on the contrary, he shall find such arrangements completed, or in progress, as will carry on the business of the Society in the usual manner for a few months in advance of the present time.

“As shortly as possible, I will refer to one or two topics upon which I may perhaps venture to place on record opinions not hastily adopted.

“First, as regards the character of the *Journal*. It has been my endeavour, with the concurrence of the Council, to render the contents of the *Journal* as varied and useful as possible—and to do so not merely by inserting the best of the Papers read before the Society itself, but also such other original and selected contributions as seemed likely to promote the cultivation of Statistics in an enlarged spirit and with a philosophic purpose. We have arrived at a time when the incessant labours of the last thirty or forty years should begin to bear fruit by enabling us to generalize many of our conclusions, and obtain a clear perception of the fundamental principles which should guide our researches. Several Papers will be found in recent volumes of the *Journal*, written with more or less of a clear perception of this aspect of our special field of inquiry, and probably there is no path which it is more incumbent upon us



to pursue with vigour, than the path which conducts us towards just conceptions of the philosophy of statistical methods and results.

“In the second place, it has been sought to render the *Journal* a dispassionate authority on as many of the important public questions which have arisen from time to time, as could be properly brought within the scope of the Society. A new science will best ascertain its own strength and failings, and best win the attention of mankind by dealing promptly and practically with the subjects within its own range, which happen to interest the world at large.

“In the third place, by means of a series of carefully framed Tables at the end of each Number, it has been sought to preserve in the *Journal* continuous observations, scientifically adjusted, of a considerable portion of the phenomena which indicate the social and material progress of the nation. It has been already found that these Tables framed and kept up on a plan of exact uniformity, have answered many useful purposes.

“In the fourth place, great care has been directed to the mechanical details of the *Journal*, and particularly to the form, size, and arrangement of every Tabular statement. The object has been to exclude every superfluous figure and mark. To admit everything essential to a sound judgment of the case—but to reject as positively mischievous, whatever was trivial or cumbrous. In order to reach the apprehension easily, the convenience of the eyesight of the reader has been studiously considered.

“The price of the *Journal* to the public was raised nearly 40 per cent. some time ago; but the enhanced price has not in any way diminished the sale; on the contrary, the demand for the *Journal* is on the increase.

“As concerns the general position of the Society, it must be regarded as gratifying that, notwithstanding the rapid growth of new learned societies which concern themselves with kindred subjects, we have been able to maintain, almost unimpaired, the standard of revenue and efficiency of the earlier periods of our career.

“I confess, however, that I have long entertained the opinion that the time has come when it will be found advantageous, and perhaps necessary, that the six or seven societies now existing in London for the cultivation of different branches of Social Science, should form themselves into a Federation, not so complete as to be subversive of individual independence, but sufficiently compact to secure the great objects of (1) concentrated libraries and places of meeting; (2) economy in management and expenses; (3) moral and intellectual power arising from the combination of several parts into one consistent whole.

“Several members of the Council will remember that at various times during the last two years, I have suggested the desirableness

of an arrangement of the kind now indicated, and that some progress has been made in the consideration of details.

"I employ, without any hesitation, the phrase *Social Science*, not perhaps as the most exact term that could be found, but as the title of a new branch of knowledge which has already acquired in the public apprehension, a definite place and a recognised function.

"There are in London at the present time the following seven societies, all engaged in one way or the other, in the cultivation of Social Science, viz.:—

- |                                  |                                       |
|----------------------------------|---------------------------------------|
| 1. Statistical Society.          | 5. Reformatory Union.                 |
| 2. Institute of Actuaries.       | 6. Association of Sanitary Officers.  |
| 3. Juridical Society.            | 7. National Association for promoting |
| 4. Society for Amendment of Law. | Social Science.                       |

"It seems to me that the manifest policy of these seven separate societies—to say nothing of manifest duty—is to form themselves into a powerful 'Institute of Social Science,' on the model of the British Association, and the Social Science Association:—that is to say, full sectional action and independence under the supervision of a central authority.

"It will be observed that in the list of societies just given, there is no provision for the investigation and discussion of questions of *Economic Science* as a separate and special pursuit; and yet sound Economic views are indispensable to the successful treatment of most of the subjects which engage the attention of the learned bodies now enumerated. There is, moreover, the striking anomaly that in the native land of Political Economy, and in the country which has done, and is doing, the most to discover its laws and illustrate their application, there is in the multitude of scientific associations, not one which specially cultivates a branch of knowledge so essentially English and practical. In France there have been for a long period the Academy of Moral and Political Sciences, besides other special means of promoting economical studies. An Institute of Social Science would be well able, by means of concentrated strength and resources, to establish a separate Section of Political Economy, and so supply a defect and a want which has been long confessed.

"It may be sufficient to say here, that conformity to at least four principles may be assumed to be indispensable in any efforts which may be made to establish a federal union of societies, viz., (1) that each existing society shall remain in possession of its own property, shall continue to be governed by its own internal rules, and shall continue to choose its own managers and officers; (2) that similar independence shall be preserved as regards the control of the publication of its own papers and proceedings; (3) that each meeting of each of the federated societies shall be open to the members of each of the other federated societies, so as to concentrate upon each



department the force of the entire body ; and (4) that the authority to be exercised by the Officers and Council of the Federation itself, should be limited to the purposes and objects rather of advising than of actively interfering with, the associated societies.

“ It has been stated that the Memorial to the late Prince Consort, to be erected at Kensington, will include a Hall or College available for the use of learned societies. If this statement should be verified, it is allowable to say that no plan would more happily fulfil some of the favourite schemes of the lamented Prince himself, than a union in his memory of those learned bodies which cultivate that Social Science which is so greatly beholden to him as a founder, guide, and expositor.

“ As concerns the Meetings of the Society, I believe I shall be quite justified by the opinion of others, when I say that at no period in its history have the meetings of the Society been better attended than during the last five or six years ; or have the discussions been more animated and instructive.

“ As a Member of the Society—or if it be the pleasure of the Fellows, as a Member of the Council—I hope to have the satisfaction of still manifesting that constant interest in the welfare of the Society, which has become to me so confirmed a habit, that I should have some difficulty in shaking it off.”

It was ordered that the preceding Minute be recorded in the proceedings of the Council, and it was Resolved unanimously—

“ That the Council in accepting Mr. Newmarch’s resignation of his offices of Honorary Secretary, and Editor of the *Journal*, desire to record their approbation of his valuable services in both those capacities. The Fellows generally are well aware of the practical and scientific character of the *Journal* under his Editorship, but the Council alone know how much credit is justly due to Mr. Newmarch. They thank him for the valuable suggestions which he has now made, and hope to be able to carry several of them into effect. They hear of the cause of his resignation with satisfaction, as in the position which he assumes, he will have an opportunity of successfully applying to the highest branch of the commerce of London, the sound financial principles which he has elucidated by his scientific papers. They heartily wish him success, and trust they shall receive his support in still further developing the usefulness of the Society, which owes so much to his zeal and labours.”

It was also Resolved—

“ That a Sub-Committee be now appointed to consider the suggested union of the learned Societies cultivating Social Science, to confer in a preliminary sense with the officers or leading members of the Societies indicated, and to report to a future Council.

“ And that the Committee consist of Colonel Sykes, Dr. Farr Mr. Newmarch, and the Honorary Secretaries.”

## MISCELLANEA.

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I.—*Scotch Vital Statistics.*

“ A NEW volume issued by the Registrar-General of Scotland gives the result of some inquiries upon several subjects of much interest. One among them is the fruitfulness of marriages. The usual mode of calculating is by observing the proportion of legitimate children in the year to the year's marriages; that proportion in Scotland, in the year under review, was considerably greater than in England or in France, and it is thought probable that the married Scottish women are more prolific than the English or the French. But an attempt has been made to ascertain the fruitfulness of every fruitful marriage. In Edinburgh the women who bore children in 1855 had borne altogether, upon an average, 3·7 children, and in Glasgow the proportion was 3·8; the largeness of the numbers in these cities gives the calculation a value much beyond that of any similar statistics hitherto published. So far as may be inferred from the returns at present obtained, it appears that the proportion of unfruitful marriages increases with a higher rank in life, and is probably less in Scotland than in England. Some curious facts came out in preparing the Glasgow table. One mother who was only 18 had four children, one who was 22 had seven children, and of two who were only 34, the one had thirteen and the other fourteen children; and, on the other hand, two women became mothers as late in life as 51, four at 52, and one mother was registered as having given birth to a child in the fifty-seventh year of her age. Another subject to which attention is called is the conspicuous proof upon these registers of the less waste of female life than of male; at every age, taking quinquennial periods up to 20, and then decennial, the proportional mortality among women in Scotland is less than that of men. There being no account of religious profession in the Scotch census, it is worthy of notice that in Scotland in 1856, of which the records are here furnished, out of every 100 marriages 47 were celebrated by clergymen of the Established Church of Scotland, 22 by the Free Church, 14 by the United Presbyterian (so commonly called the U. P.) Church, 9 by the Roman Catholic Church, not quite two by the Episcopal Church; and these numbers are considered roughly to indicate the proportion of population attached to each denomination. In elementary education Scotland is ahead of England; 88 per cent. of the men married and 76 per cent. of the women were able to sign the register in 1856. It is calculated that in that year, in addition to the emigration beyond the seas, a number as large—about 13,000—must have left Scotland for England and Ireland. Our northern neighbour sends us in this emigration many cool clear heads; she can boast and prove by tables and returns that brain diseases are very much less prevalent and fatal in Scotland than in England—a fact of which it would be interesting to know the cause. The inhabitants of towns in Scotland, it appears, are cut off by tubercular diseases in twice the proportion of those in the country—a circumstance



which seems to favour the doctrine that they are diseases of debility and imperfect assimilation. Of the excessive mortality of towns beyond that of the rural districts, nearly half occurs among infants under five years old. Without pursuing these topics further, we must notice that the volume does not close without a word for whiskey, 'the natural drink of Scotland,' as beer is that of England. In the year of which we are speaking, liver diseases cut off the English in the proportion of 34 in every 10,000 persons, and 35 in the previous year; while the Scotch were struck down in the proportion of only 26 in the one year and 27 in the other. It is suggested that further observations should be made, and that if they have the same result Chancellors of the Exchequer should lay these things to heart, and not be so ready to favour the consumption of beer and light wines to the prejudice of that which, after all, may prove to be a better beverage."

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## II.—*Topographical Department.*

"SIR H. JAMES has presented his annual report of the important works under his care. The sale of the maps to the public last year produced above 8,000*l*. The year saw completed the trigonometrical survey of the United Kingdom, which was begun in 1783, under General Roy. It is comprised in seven quarto volumes. Photo-zincography is more and more proving its value; and a facsimile of 'Domesday Book' will be published county by county, or at least wherever any gentleman will guarantee to pay for fifty copies of any county. The art of photo-zincography, which has been discovered and applied for the purpose of making the detailed topographical plans of the kingdom, has thus led to the production of the facsimile of the most ancient survey and terrier of the kingdom, a document such as no other country in the world possesses. The publication of the edition of 1783 is said to have cost the Government 38,000*l*.; the types were destroyed by a fire in 1808, and copies are so expensive and so rare that few can either buy or even refer to one. But now, through this simple and inexpensive process, and by publishing in parts, any one can purchase the portion relating to the county in which he is more particularly interested, generally for 8*s*. or 10*s*., and the Government will not be put to any cost whatever. Authentic copies could be made of such documents as are required to be deposited in the public Record Office, and it is said that this would probably save an expenditure of 10,000*l*. a-year. The process is about to be introduced in India and in Canada. A proposition is under consideration for sending a photographer to Simancas, in Spain, to copy some of the dispatches in cypher deposited in the Royal Archives there, and which are supposed to relate to important events, some time before and after the reign of Elizabeth. A method has been discovered of producing a negative impression on paper, from which a single copy of a deed or other document can be printed on parchment in permanent ink, avoiding the necessity of transferring the negative copies to zinc or stone before printing. Sir H. James calls this art papyrography. It will be useful where a single copy of a document, or only two or three copies are wanted. Examples of it have been placed in the libraries of the Houses of Lords and Commons."

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## III.—*Traffic in the City.*

"AT the present moment, when the question of the best means of relieving our crowded thoroughfares is creating considerable interest in the Court of Common Council, and in the City generally, the following return of the number of vehicles and persons ascertained to have entered the City *daily*, in the early part of the month of May, 1860, will, we doubt not, be of interest to our readers:—

	Number of Vehicles.	Number of Passengers in Vehicles.	Number of Foot Passengers.	Total Number of Passengers.
Aldersgate Street .....	2,052	4,952	21,060	26,012
Aldgate .....	4,978	12,548	42,574	55,122
Artillery Street .....	148	232	4,110	4,342
Bishopsgate ,, .....	3,461	19,388	34,160	53,548
Blackfriars Bridge .....	4,108	7,293	31,642	38,935
,, Pier .....	—	—	2,140	2,140
Blackwall Railway .....	—	—	7,032	7,032
Blomfield Street .....	719	1,260	10,052	11,312
Brook ,, .....	254	413	4,530	4,943
Catherine Wheel Alley .....	—	—	1,876	1,876
Chancery Lane .....	1,279	7,593	13,057	20,650
Church Street .....	257	375	2,530	2,905
Custom House Stairs .....	—	—	109	109
Devereux Court .....	—	—	4,466	4,466
Dyers' Hall Pier .....	—	—	1,439	1,439
Finsbury Place .....	3,451	11,060	27,024	38,084
Golden Lane .....	247	352	8,140	8,492
Half Moon Street .....	114	159	2,886	3,045
Harrow Alley .....	81	107	6,220	6,327
Hatton Garden .....	423	815	8,332	9,147
Haydon Square .....	262	456	2,333	2,789
Holborn Bars .....	9,060	36,094	41,610	77,704
Leather Lane .....	162	237	5,830	6,067
Little Moorfields .....	150	228	5,230	5,458
London Bridge .....	10,429	30,799	54,128	84,927
,, Wharf .....	—	—	1,110	1,110
Milton Street .....	215	357	4,580	4,937
Minories .....	2,456	3,571	18,208	21,779
Moor Lane .....	140	175	6,041	6,216
Paul's Wharf .....	—	—	1,271	1,271
Primrose Street .....	6	6	1,630	1,636
Ropemaker ,, .....	128	172	2,436	2,608
Rosemary Lane .....	384	571	3,034	3,605
Shades Pier .....	—	—	2,500	2,500
Skinner Street .....	61	86	2,006	2,092
Smithfield Bars .....	2,439	4,012	24,830	28,842
Somerset Street .....	584	932	7,210	8,142
Southwark Bridge .....	497	1,465	875	2,340
Stoney Lane .....	126	141	7,672	7,813
Sun Street .....	1,119	1,799	11,970	13,769
Swan Pier .....	—	—	3,835	3,835
,, Street .....	509	713	4,154	4,867
Temple Bar .....	2,159	13,724	36,950	50,674
Tower Stairs .....	—	—	197	197
Union Street .....	1,254	1,861	11,356	13,217
Victoria ,, .....	1,748	3,114	12,650	15,764
Whitecross Street .....	2,305	4,026	24,890	28,916
Widegate .....	—	—	3,620	3,620
Total .....	57,765	171,086	535,535	706,621

*Note.*—At the time this was taken, part of the pavement was up in Fleet Street, which had the effect of bringing less vehicles into the City through Temple Bar, and more than usual through Holborn Bars.



IV.—*The Coal Trade.*

“THE coal trade of Northumberland and Durham, which held its annual meeting last week, has issued its report of the state of the trade during 1861. ‘Nothing can demonstrate,’ the report says, ‘the yet healthy position of the trade more forcibly than the fact that, amid a collapse of industrious pursuits so widely extended, the demand for coal has not only not diminished, but increased. It may be true—the committee believe it to be true—that the returns of the year just ended do not equal those of 1860, but this cannot be attributed either to any great depression of prices, or to any of the ordinary drawbacks upon commercial prosperity. In fact, the prices in 1861 were only, on the average, 4*d.* per ton less than that of the preceding year. The average price of first-class household coal in the London market in 1861 was 19*s.* 5*d.* per ton; seconds, 17*s.* 2*d.* per ton. In 1860 the prices of first and second class coals respectively in the London market were 19*s.* 9*d.* and 17*s.* 6*d.* The rate of freights to London, on the average, exactly coincide in 1860 and 1861, being 6*s.* 10*d.* per ton. The report further states that it is now apparent in the face of the official returns of coals imported into London by sea, by railway, and by canal that those by railway are gradually increasing in a greater ratio than those by sea. The importation by sea from the northern district barely shows an increase over 1860; the total additional being only 8,384 tons; while the increase in 1861 upon coals by railway is no less than 164,957 tons. Of this increase about 63,000 tons are, however, upon coals from the county of Durham.’ The following are the returns of coal shipped from the northern ports:—

	Tons.
Coals sent to London up to December 31, 1861 .....	3,373,901
“ “ “ “ ‘60 .....	3,365,317
1861—Increase .....	8,584
Coals sent coastwise up to December 31, 1861 .....	3,031,494
“ “ “ “ ‘60 .....	2,902,032
1861—Increase .....	129,462
Coals exported up to December 31, 1861.....	3,959,252
“ “ “ “ ‘60.....	3,751,740
1861—Increase .....	207,512
The total increase on the three branches is ....	345,658

For the article coke a similar increased demand is exhibited. It is as follows:—

	Tons.
Increase on coke—	
Sent to London up to December 31 .....	1,347
“ coastwise.....	8,049
Exported.....	38,906
Total increase—Coke.....	48,302

Considerable anxiety has been manifested in the north this week with regard to the flooding of two collieries—the Monkwearmouth pit, in the county of Durham, and the Gosforth pit, in the county of Northumberland, by immense feeders of water breaking into the shaft. Down to Thursday night, though there had been no one injured or lost through those accidents, the rush of water into the shafts had not been entirely stopped, a large number of miners have been temporarily thrown out

of employment, and it is feared a good deal of damage will be done to those pits by the flow of water into the workings. The horses and ponies have been brought to bank."

V.—Exports of Manufactured Cotton to the East.

FROM the *Manchester Guardian* of the 14th January, 1863:—

"The following table, which we have received from an entirely reliable quarter, will enable our readers to note the progress of our exports to the chief ports of India from 1852 to 1862, both years inclusive:—

*Exports to the Bay of Bengal*

	Cotton Cloth.		Cotton Yarn.
	Plain Packages.	Printed Packages.	
			lb.
1852 .....	92,880	4,624	16,330,967
'53 .....	92,966	7,596	17,661,810
'54 .....	143,520	6,883	18,384,329
'55 .....	144,832	3,813	19,379,465
'56 .....	140,034	9,345	17,913,512
'57 .....	117,524	14,333	13,511,971
'58 .....	208,980	11,057	24,878,424
'59 .....	266,514	46,995	27,209,721
'60 .....	210,537	14,267	23,124,969
'61 .....	209,369	16,154	17,757,472
'62 .....	137,864	20,594	11,246,617

*Exports to Bombay.*

	Cotton Cloth, Plain Packages.	Cotton Yarn.
		lb.
1852 .....	59,081	6,438,738
'53 .....	62,729	6,853,965
'54 .....	79,177	6,349,305
'55 .....	55,738	7,675,169
'56 .....	61,729	4,592,084
'57 .....	60,454	3,101,948
'58 .....	124,227	8,877,957
'59 .....	140,643	12,745,837
'60 .....	117,103	4,561,124
'61 .....	126,389	5,664,228
'62 .....	80,057	4,802,465

"Here we see that in the four years following 1857, the average quantity of cotton cloth sent to Bombay was *fully double that of the preceding four or five years*; and that the average shipped to the Bay of Bengal in 1858, 1859, 1860, and 1861, *exceeded by more than 60 per cent.* the average of 1854, 1855, 1856, and 1857. The addition to printed calicoes and to cotton yarns was also large to that bay. The sudden and vast increase in 1858 was owing to two causes. 1. The panic of the preceding year had sunk prices here in so great a degree as to tempt merchants to expend large sums, especially in the purchase of articles for India,



whose power of absorption seemed to them unlimited. 2. The military expenditure for the suppression of the mutiny created a special demand for our manufactures in 1858, to the enrichment of the consigners. It would be natural to suppose that the wide-spread impoverishment of the peninsula by the civil war would greatly diminish the demand for calico; and such must certainly have been the case. But it will be seen that shipments went on increasing against reason; and the markets became hugely overstocked, and the prices ruinously reduced. Some time after the restoration of peace indeed, various public works were commenced, and a rise of wages set in, which led to an augmented demand for our products; but supplies were poured into the country in such superabundance as not only prevented prices from becoming remunerative, but kept them so much below that point as to involve the certainty of such losses upon the enormous stocks in the ports as, added to previous losses, must have brought on an Eastern crisis of a very serious character if the war in America had not greatly curtailed the supplies in 1862, and given a highly remunerative value to the stocks on hand. *Throughout the greater part of last year, however, but especially in the latter half of it, the shipments hence have been at prices that must ensure heavy losses to the owners, unless the stoppage of cotton from America should last long enough to save them.* Prices are now about 50 per cent. above the general range for some years prior to the arrestment of the cotton supply; and this must diminish the consumption in something like an equal ratio. This consideration is not sufficiently borne in mind by those who are impatient at the little further improvement of which we are advised by each successive mail."

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#### VI.—*Note on Mr. Lumley's Paper on l'Union du Crédit de Bruxelles.*

IN vol. xx. of the *Journal* of the Society, p. 61, is printed "An Account of the Banking Establishment in Belgium, termed l'Union du Crédit de Bruxelles," read before the Society in Jan, 1857, by Mr. Lumley, one of the Honorary Secretaries. An account of the same Society, drawn up by M. T. Haeck, of Brussels, in terms much the same as those used by Mr. Lumley, appears in the volume of the "Transactions of the National Association for the Promotion of Social Science, for 1862." The progress of the Society is there shown to the end of 1861, six years beyond the last year referred to in Mr. Lumley's account.

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#### VII.—*Note upon a Paper on the Income Tax, in the Journal of the Statistical Society for September, 1862.*

"IN the *Journal* of this Society for September 1862, there occurs a paper by Mr. William Lucas Sargant, the title of which is 'An Undiscriminating Income Tax Reconsidered.'

"The author has referred at its commencement to various principles upon the subject which have been advocated by different writers. Again, in section x, entitled 'Strictures on Distinguished Opinions,' the author of those various opinions are cited by name.

"Mr. Sargant seems not to have been aware that the principle which he enunciates as his own view was already in print many years ago. I refer to the pamphlet, *Thoughts on the Principles of Taxation, with Reference to a Property Tax and its Exceptions.* By Charles Babbage, Esq., 8vo., 1849; second edition, 1851; third edition, 1852.

"At the adjourned discussion\* of Mr. Sargant's paper on an Income Tax, during

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\* Mr. Sargant was not present at the adjourned discussion.

one of the evening meetings of the Statistical Society, I stated distinctly my own views on the subject.

"Soon after the publication of my essay, during a short visit to Paris, M. Passy, the Minister of Finance, invited me to call at his office, that we might talk over the subject. I was much gratified to find that distinguished financier agreeing with me entirely in the justice of the principle and even in a great number of the details.

"Shortly after the publication of my pamphlet, the Minister of Finance to the King of Sardinia caused an Italian translation of it to be prepared and published at Turin.

"12th Feb., 1863."

"C. BABBAGE."

[It will be satisfactory to Mr. Sargant to learn that the opinion he entertains is supported by such high authority. It is necessary, however, to state that Mr. Sargant never saw, nor heard of Mr. Babbage's pamphlet.—ED. S. J.]

### VIII.—*The New Statistical Abstract for France.*

FROM the *Economist* of the 21st February, 1863 :—

"Following the example of the English Board of Trade, the French Ministry of Commerce has just issued a 'Statistical Abstract' for France,\* relating to the period of fifteen years from 1847 to 1861.

"Leaving the facts to speak for themselves, we proceed to glance briefly at the most important points presented to notice in the French abstract, in the following order :—

1. Population, Production, &c.
2. Commerce. And
3. Navigation.

#### "1. Population, Production, &c.

"*Population.*—The area of France in the year 1861, was 209,420 square miles, and the total population 37,382,000 persons, giving a mean population of 179 persons to the square mile. These figures include the departments of Savoy and Nice, and consequently prevent any comparison being made with previous census returns. The increase in the population of France (exclusive of Savoy and Nice) in the decennial period between 1846 and 1856, was only 2·23 per cent. In England and Wales the increase according to the last census, was 12 per cent.; and in Scotland 6 per cent.; and the density of population was 344 persons to the square mile in England and Wales, and 98 in Scotland.

"*Distribution of the Soil of France.*—Exclusive of the departments of Savoy and Nice, from which no returns have been received, the soil of France is divided as follows :—

	Pr. cent.
Under cultivation :—	
Grain crops.....	28·30
Other „ „.....	5·00
Artificial meadows .....	5·00
Fallow .....	10·80
Natural meadows.....	9·50
Vineyards .....	4·10
Chestnuts, olives, mulberry, &c. ....	0·20
Pasture and waste lands.....	13·50
Forest, water, roads, houses, and uncultivated.....	23·60
	<hr/>
	100·00

\* *Situation Economique et Commerciale de la France.* Paris, 1862.



“ *Live Stock.*—The total number of each kind of live stock in France (exclusive of Savoy and Nice) is estimated as follows :—

Horses .....	3,000,000
Asses .....	400,000
Mules.....	330,000
Horned cattle .....	10,094,000
Calves .....	4,104,000
Sheep and lambs .....	35,000,000
Goats and kids .....	1,400,000
Swine above one year .....	1,400,000
Sucking pigs and young wild boars .....	4,000,000

(Only between one-fourth and one-fifth of the total number of sheep are of the ordinary kind, the remainder being merinos or of mixed breed).

“ *Wheat.*—The production of wheat during the period from 1847 to 1861, varied from  $23\frac{1}{3}$  million quarters in 1853 to  $37\frac{3}{4}$  million quarters 1857. In 1861, the year in which the largest area was under wheat cultivation, the produce was only  $25\frac{3}{4}$  million quarters. The greatest yield per acre during the period was in 1857, and the smallest in 1861.

“ It is not, perhaps, generally known, that France derives a far greater part of her supply of meat from abroad than England does, and this under the old protective system. The average importations for consumption in the years from 1856 to 1860, in the two countries were as follows :—

	United Kingdom.	France.
	No.	No.
Oxen, bulls, cows, and calves .....	90,500	126,200
Sheep and lambs.....	213,000	402,000

“ This fact is worthy the attention of the French Government, as it is well known that the adoption of free-trade principles tends to direct the attention of producers to manufactures, and the Government should lose no opportunity of stimulating the agricultural resources of the country, which will prove equally remunerative to the farmer under the new commercial system.

“ *Wine.*—The mean annual production of wine in France, is 1,089,000,000 gallons. Of this quantity 67 per cent. is consumed in the country, leaving 33 per cent. for exportation.

“ *Silk.*—The production of silk has greatly diminished of late years; the annual average production of cocoons from 1846 to 1852, was 53 million lbs., which had diminished from 1858 to 1861 to  $26\frac{1}{2}$  million lbs.

“ *Mines.*—The production of coal in 1861, was about 8 million tons; of cast iron, 856,000 tons; of wrought iron (merchant), 520,000 tons; of rails, 106,000 tons; of iron plates 69,000 tons; of iron wire 24,000 tons; and of steel, 20,000 tons. The value of these was between 18 and 19 millions sterling. The value of other metals produced was about  $2\frac{1}{2}$  millions sterling.

“ In the period from 1847 to 1859, the average price of coal at the place of production increased 31 per cent., the average price being in 1859, 10s. 1d. per ton. The price of cast iron made by charcoal and by coal diminished by about 20 per cent. during the same period. The price of wrought iron made with charcoal diminished only 7 per cent., while that made with coal decreased by about 23 per cent. France imports annually from 5 to 6 million tons of coal from Belgium, England, and the Rhenish Provinces.

“*Salt*.—The production of salt increased from 572,000 tons in 1847 to 630,000 tons in 1861.

“*Sugar*.—The quantity of home made sugar entered for consumption, doubled during the period from 1847 to 1861, being 52 million kilogrammes in the former year, and 105 millions in the latter.

“*Tobacco*.—The increase in the quantity of tobacco manufactured by the Government and sold in France in 1860, as compared with 1847, amounted to 10 million kilogrammes, or 22 million lbs.

“*Machinery*.—Connected with the productive power of the country, as taking the place of so many able-bodied workmen, the increase in the steam motive power employed, affords some guide as to the progress of the industry of the country. In the year 1847, the total horse power of machinery so employed was only 145,807, but in 1859 it had increased to 513,092. The increase appears to have been divided generally between the various trades and manufactures of the country.

“*Means of Communication*.—The length of river, canal, and road communication in France, is stated as under :—

	Miles.
Rivers .....	5,899
Canals .....	2,919
Roads of all kinds .....	403,650

The tonnage of steam vessels engaged in the river navigation, increased from 21,134 tons in 1847 to 33,690 tons in 1859, the largest employment having been 51,097 tons in the year 1857. As might be expected, there was a decline in the number of passengers from  $2\frac{1}{2}$  millions to  $1\frac{1}{2}$  million, consequent upon the increased facilities of railway accommodation. There was, on the other hand, a large augmentation in the quality of goods conveyed, viz., from 880,000 tons in 1847, to 2,616,000 tons in 1859.

“*Railways*.—On the 31st December, 1861, 6,269 miles of railway were open in France, against 1,136 miles on the 31st December, 1847. The statistics of the number of passengers and weight of goods conveyed, only come down to the year 1859. The increase in that year over 1847, was  $39\frac{1}{2}$  million passengers—the total in 1859 being  $52\frac{1}{2}$  millions; and the increase in goods’ traffic  $16\frac{1}{4}$  million tons—the total weight conveyed in 1859 being about 20 million tons.

“*Post Office*.—The number of letters sent by the post more than doubled between 1847 and 1861, being 126 millions in the former year and 274 millions in the latter. In the same year the number of printed papers transmitted by the post were 90 millions in 1847, and 189 millions in 1861. The total receipts were 1,920,000*l.* in 1847, and 2,440,000*l.* in 1861.

“*Electric Telegraphs*.—In the year 1851, only 9,014 private messages were despatched, producing a receipt of 3,080*l.*; and in the year 1860, no less than 711,652 messages were sent, and 165,760*l.* received. Of the total number in 1860, 562,531 messages were used in France, and 149,121 sent to foreign countries.

“*Coinage*.—The total value of gold coined in France in the period from 1847 to 1861 inclusive, was 181,693,000*l.*, and of silver 30,235,000*l.*

“*Savings’ Banks*.—The total number of savings’ banks in 1847 was 345, and the number of accounts open on the 31st December in the same year 736,591. In 1860 the number of banks increased to 433, and the accounts open to 1,218,122.”



MARRIAGES, BIRTHS, AND DEATHS IN GREAT BRITAIN.

No. I.—ENGLAND AND WALES.

MARRIAGES DURING THE THIRD QUARTER (JULY—SEPTEMBER), AND OF  
THE BIRTHS AND DEATHS DURING THE FOURTH QUARTER  
(OCTOBER—DECEMBER), OF 1862.

THE general aspect of the returns cannot be pronounced “moderately good.” Though the marriage-rate was fairly maintained in London and some other parts, it was so much depressed in Lancashire that the general result was lower than the average. The growth of the population did not suffer by failure of the natural supply, for births were numerous in the last three months, as they were during the whole of last year. But the deaths were also numerous. The rate of mortality was above the average; and apparently the principal cause of this excess was the cold weather of November, which carried off many persons in all parts of the country.

MARRIAGES. —There were 40,585 marriages in the third quarter of the year. In London the number rose from 7,708 and 7,347 in the third quarter of 1860-1 to 8,067 in the same period of 1862. This increase occurred at a time when the Exhibition was an inducement to part of the permanent population to remain in town, and attracted strangers from the provinces, and more distant parts, to spend some weeks of leisure within a convenient distance of its precincts.

ENGLAND :—MARRIAGES, BIRTHS, and DEATHS, *returned in the Years*  
*1856-62, and in the QUARTERS of those Years.*

*Calendar YEARS, 1856-62 :—Numbers.*

Years .....	'62.	'61.	'60.	'59.	'58.	'57.	'56.
Marriages No.	—	163,745	170,156	167,723	156,070	159,097	159,337
Births..... ,	711,691	695,562	684,048	689,881	655,481	663,071	657,453
Deaths..... ,	436,514	435,337	422,721	440,781	449,656	419,815	390,506

*QUARTERS of each Calendar Year 1856-62.*

(I.) MARRIAGES :—*Numbers.*

<i>Qrs. ended last day of</i>	'62.	'61.	'60.	'59.	'58.	'57.	'56.
March .....No.	33,976	33,401	35,150	35,382	29,918	33,321	33,427
June ..... ,	40,771	41,966	43,777	42,042	39,890	41,267	38,820
Septmbr..... ,	40,585	39,892	40,541	39,803	38,599	38,669	39,089
Decmbr. .... ,	—	48,486	50,688	50,496	47,663	45,840	48,001

## QUARTERS of each Calendar Year, 1856-62.

## (II.) BIRTHS:—Numbers.

<i>Qrs. ended last day of</i>	'62	'61.	'60.	'59.	'58.	'57.	'56.
March .....No.	182,005	173,170	183,180	175,532	170,959	170,430	169,250
June ..... „	185,638	184,718	174,028	175,864	169,115	170,444	173,263
Septmbr. .... „	172,237	171,500	164,121	168,394	157,445	161,181	157,462
Decmbr. .... „	171,811	166,174	162,719	170,091	157,962	161,016	157,478

## (III.) DEATHS:—Numbers.

<i>Qrs. ended last day of</i>	'62.	'61.	'60.	'59.	'58.	'57.	'56.
March .....No.	122,192	121,713	122,617	121,580	125,819	108,665	103,014
June ..... „	107,555	107,721	110,869	105,631	107,142	100,046	100,099
Septmbr. .... „	92,225	100,986	86,312	104,216	98,142	100,528	91,155
Decmbr. .... „	114,542	104,917	102,923	109,354	118,553	110,576	96,238

In Lancashire the marriages, which were 6,315 and 6,123 in the third quarter of 1860-1 respectively, declined to 5,468 in that of last year. The following are some of the more important districts in that county, with the number of marriages in the quarter ending 30th September of each of the last three years:—

	1860.	1861.	1862.
Bolton .....	287	301	235
Bury .....	229	185	167
Chorlton .....	142	128	139
Salford .....	161	154	141
Manchester .....	1,194	1,155	1,019
Ashton .....	350	365	222
Oldham .....	243	221	184
Rochdale .....	218	221	158
Burnley .....	204	184	175
Blackburn .....	338	306	243
Preston .....	298	256	249

ENGLAND:—*Annual Rate Per Cent. of PERSONS MARRIED, BIRTHS, and DEATHS, during the YEARS 1856-62, and the QUARTERS of those Years.*

*Calendar YEARS, 1856-62:—General Percentage Results.*

YEARS .....	'62.	Mean '52-'61.	'61.	'60.	'59.	'58.	'57.	'56.
Estmtd. Popln. of England in thousands in middle of each Year....	20,337	—	20,119	19,903	19,687	19,471	19,257	19,043
Persons Married Per cent. }	—	1.684	1.628	1.710	1.704	1.604	1.652	1.674
Births .... „	3.500	3.420	3.457	3.437	3.504	3.366	3.443	3.453
Deaths .... „	2.146	2.221	2.164	2.124	2.239	2.309	2.180	2.051



## QUARTERS of each Calendar Year, 1856-62.

## (I.) PERSONS MARRIED :—Percentages.

<i>Qrs. ended last day of</i>	'62.	Mean '52-'61.	'61.	'60.	'59.	'58.	'57.	'56.
March....Per ct.	1.360	1.405	1.352	1.422	1.464	1.252	1.410	1.414
June..... „	1.610	1.709	1.676	1.766	1.716	1.646	1.722	1.638
Septmbr. „	1.582	1.616	1.572	1.614	1.602	1.570	1.592	1.626
Decmbr. „	—	1.991	1.904	2.012	2.026	1.934	1.880	1.992

## (II.) BIRTHS :—Percentages.

<i>Qrs. ended last day of</i>	'62.	Mean '52-'61.	'61.	'60.	'59.	'58.	'57.	'56.
March....Per ct.	3.644	3.588	3.505	3.707	3.631	3.576	3.604	3.580
June .... „	3.666	3.571	3.687	3.512	3.588	3.488	3.555	3.655
Septmbr. „	3.356	3.285	3.377	3.267	3.389	3.204	3.316	3.276
Decmbr. „	3.338	3.231	3.264	3.230	3.414	3.205	3.304	3.267

## (III.) DEATHS :—Percentages.

<i>Qrs. ended last day of</i>	'62.	Mean '52-'61.	'61.	'60.	'59.	'58.	'57.	'56.
March....Per ct.	2.447	2.489	2.463	2.481	2.515	2.631	2.298	2.179
June..... „	2.124	2.201	2.150	2.237	2.155	2.210	2.087	2.111
Septmbr. „	1.797	2.020	1.989	1.718	2.097	1.997	2.068	1.896
Decmbr. „	2.226	2.171	2.061	2.043	2.195	2.406	2.269	1.997

The marriages in Stockport, in Cheshire, show a clear decrease in 1862; they were 291, 299, and 204.

It has been stated that Ashton-under-Lyne stands at the top of the scale of pauperism; and if marriages are expected to be fewest where distress is greatest, the returns fully justify that expectation. In Ashton the decrease on the two previous summers was no less than 38 per cent. Next in respect of decrease is Stockport, where it was 31 per cent. The marriages of Rochdale decreased 28 per cent.; of Chorley 28; of Leigh 25; of Blackburn 25; of Oldham 21; of Bolton 20; of Bury 19; of Manchester 13; of Salford 11 per cent. In Haslingden, Preston, Burnley, Wigan, they decreased 10 per cent. Chorlton showed a slight increase. When the marriage returns for the year are completed, they may be compared with the amount of pauperism, namely, the proportion which the persons relieved from the local rates and the funds of Relief Committees bore to the whole population.

BIRTHS.—The total number of children born in the autumn, *i.e.* the fourth quarter, was 171,811. In autumn the birth-rate is invariably lower than in either of the first two quarters; and it is generally lower than in the September quarter. But whatever may be the fluctuations of the birth-rate of season with season, or

year with year, is compared, the rule holds, not without deviation, but with tolerable constancy, that more children are enrolled in the birth-registers in any year than have been entered in that which preceded it; and the births in 1862 exceeded by more than 87,000 the number in 1852. The birth registration of last year, extending over a period of fifty-two weeks, was as great as it was ten years ago, in fifty-nine or sixty weeks.

In last quarter the annual birth-rate was 3·338 to a hundred of the population. It was higher than the average, which is 3·231. In London 23,783 children were born; in the North Western Counties, Cheshire, and Lancashire, the number was 26,444. The metropolis has a population in round numbers of 2,804,000; the manufacturing division has 2,936,000.

The birth-rate in Cheshire and Lancashire was 3·481 per cent.; it was higher than the birth-rate in England (3·338). In London the rate was 3·274, and therefore lower than the rate that prevailed in the entire English population. It rose as high as 3·558 in Yorkshire, 3·630 in the Northern Counties (Durham, Northumberland, Cumberland, and Westmorland); and it fell as low as 3·082 in the Welsh Division. The most prolific population is found in the coal-producing districts of the north, and the thriving ports on the Tyne and the Wear.

**INCREASE OF POPULATION.**—The births in the quarter exceeded the deaths in the same period by 57,269. Part of the accumulation is constantly lost in the stream of emigrants. In the three months 25,284 emigrants left ports in the United Kingdom at which there are Government Emigration Officers; and of these about ten thousand were of English origin.\* In the last three months of 1861 the total number of emigrants was only 16,569.

The whole emigration of 1862 consisted of 121,214 persons, English Scotch, Irish, and Foreign, of whom 58,706 left the shores of the United Kingdom for the United States, 15,522 for the North American Colonies, 41,843 for the Australian Colonies, 5,143 for other places. England contributed more than a third part of the total number of emigrants. About 60,000 persons of Irish origin left in the year; and more than half of these went to the United States. The Scotch preferred Australasia.

Of married men there were 10,725; of married women 12,854; of the unmarried above 12 years of age there were 39,563 males, 24,240 females.

**PRICES, THE WEATHER, AND PAUPERISM.**—The price of wheat fell. The average price in the last quarter of the year was 48*s.* 2*d.* per quarter, which is less by 8*s.* 7*d.* than in the corresponding period of 1860, and less by 11*s.* 1*d.* than in that of 1861. The average price of the best potatoes was five pounds per ton, which is less by a pound than it was in the last quarter of the two previous years. The cheapness of this favourite and anti-scorbutic esculent was a fortunate circumstance for the workmen of Lancashire in the ruin of their trade.

In Mr. Glaisher's Remarks on the Weather, it will be seen that at Greenwich the quarter began with a warm period which lasted seventeen days; after which the weather was variable, but for the most part rather cold till the end of the month. November commenced with a few warm days, which were followed by a cold period that set in on the 6th and continued to the 2nd December, the mean temperature having been 4°·5 below the average. In the last twenty-nine days the air was as warm as it had previously been cold, the average excess having been 4°·5 daily.

The mean temperature of October was, with two exceptions, higher than it had been in the same month since 1847; that of November was lower than it had been in the same month since 1829, two Novembers excepted; and December was warmer than that month had been since 1843, with the exception of three Decembers in that period.

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\* From a Return with which the Registrar-General has been favoured by the Emigration Commissioners: the number returned as of English origin was 8,272, while the birthplace of 4,633 emigrants was not distinguished; in the above statement a proportional number of these has been added to those returned as of English origin.



At Greenwich the fall of rain in the year was 26·5 in., and a fourth part of it was in the last quarter. Both these quantities are rather more than their respective averages. The rain-fall in 1862 varied from 20·4 in. at Scarborough to 54·4 in. at Stonyhurst.

The average number of paupers relieved on the last day of each week in the quarter were :

Quarter ending 31st December, 1860;	In-door, 115,158 ;	Out-door, 673,680.
"              "              '61 ;	"      128,533 ;	"      716,096.
"              "              '62 ;	"      132,663 ;	"      907,493.

If the last of the three periods is compared with the first, the recipients of parochial aid increased by 251,318.

CONSOLS, PROVISIONS, PAUPERISM, and TEMPERATURE, in each of the Nine  
QUARTERS ended 31st December, 1862.

1	2	3	4		5	6	7		8	9
Quarters ending	Average Price of Consols (for Money).	Average Price of Wheat per Quarter in England and Wales.	Average Prices of Meat per lb. at Leadenhall and Newgate Markets (by the Carcase), with the <i>Mean</i> Prices.		Average Prices of Potatoes (York Regents) per Ton at Waterside Market, Southwark.	Pauperism.		Mean Tem- pera- ture.		
						Quarterly Average of the Number of Paupers relieved on the <i>last day</i> of each week.				
			Beef.	Mutton.			In-door.		Out-door.	
1860 31 Dec.	£ 93 $\frac{2}{8}$	s. d. 56 9	d. d. d. 3 $\frac{1}{2}$ —6 $\frac{1}{4}$ 4 $\frac{7}{8}$	d. d. d. 4 $\frac{3}{4}$ —6 $\frac{3}{4}$ 5 $\frac{3}{4}$	s. s. s. 115—130 122	115,158	673,680	42·6		
1861 31 Mar.	91 $\frac{6}{8}$	55 1	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	5 $\frac{1}{2}$ —7 $\frac{3}{4}$ 6 $\frac{5}{8}$	140—155 147	131,501	758,441	39·9		
30 June	91 $\frac{6}{8}$	54 9	4 $\frac{1}{4}$ —6 $\frac{1}{2}$ 5 $\frac{3}{8}$	5 $\frac{1}{4}$ —7 $\frac{1}{4}$ 6 $\frac{1}{4}$	120—140 130	117,802	713,785	51·8		
30 Sept.	91 $\frac{3}{8}$	52 1	4 $\frac{1}{4}$ —6 $\frac{1}{2}$ 5 $\frac{3}{8}$	4 $\frac{7}{8}$ —7 5 $\frac{7}{8}$	85—110 97	112,932	693,649	60·4		
31 Dec.	93 $\frac{2}{8}$	59 3	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	4 $\frac{3}{4}$ —6 $\frac{3}{4}$ 5 $\frac{3}{4}$	110—130 120	128,533	716,096	45·5		
1862 31 Mar.	93 $\frac{1}{8}$	60 1	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	4 $\frac{3}{4}$ —6 $\frac{1}{2}$ 5 $\frac{5}{8}$	130—155 142	143,926	804,272	41·1		
30 June	93 $\frac{6}{8}$	56 8	4—6 5	5—7 6	180—200 190	127,863	781,858	53·3		
30 Sept.	93 $\frac{2}{8}$	56 10	4 $\frac{1}{4}$ —6 $\frac{1}{4}$ 5 $\frac{1}{4}$	5 $\frac{1}{4}$ —7 6 $\frac{1}{8}$	100—130 115	119,592	789,914	58·7		
31 Dec.	93 $\frac{5}{8}$	48 2	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	5 $\frac{1}{4}$ —6 $\frac{3}{4}$ 6	90—110 100	132,663	907,493	45·0		

Col. 6 is deduced from the Weekly Tables published in the *Economist*. The average of the highest and of the lowest weekly prices is here shown in cols. 4, 5, and 6, and not the absolute highest or lowest price quoted at any period of the quarter.

Cols. 7 and 8 are deduced from the Returns of the Poor Law Board. The Returns now relate to 651 Unions, &c., comprising a population of 19,864,912 (in 1861), and do not include the paupers of parishes, &c., incorporated under Gilbert's Act, or still under the 43rd Elizabeth; Lunatic Paupers in Asylums and Vagrants relieved in the above Unions are also excluded. They amounted on January 1st, 1862, to—Insane Persons, 31,554; Vagrants, 1,542. The rest of the paupers on that day amounted to 817,800.

THE MORTALITY, AND THE STATE OF THE PUBLIC HEALTH.—The total number of deaths in the three months that ended 31st December, was 114,542. In the corresponding season of 1860 it was nearly 103,000; in that of the following year nearly 105,000. Though the last of these autumns was not as a whole colder than those which preceded it, the sudden invasion of cold in November, and the abrupt succession of heat account for its having been the most fatal. The death-rate was 2·226 per cent. against an average of 2·171. In the principal towns the rate of mortality in the quarter would have carried off 253 persons in a year out of a population of 10,000 (against an average of 247); and in the small towns and country parishes it would have carried off 192 out of a population of equal amount (against an average of 190).

The North-Western Counties, Yorkshire, London, the Northern Counties, the West Midland, are five divisions in which the highest rate of mortality prevailed. In the first, which contains the district of the cotton manufacture, the rate (2·66 per cent.) was higher than in any other division. This distinction is not of recent birth; it is not the fruit of adverse circumstances, but has sprung from causes which have been in operation since Liverpool, Manchester, and other towns in what has been called the worst drained part of England, rose into importance as

DEATHS in the Autumn Quarters, ended 31st September, 1855-62.—Numbers.

DEATHS, &c.	1862.	Total 1852-61, (10 Years.)	1861.	1860.	1859.	1858.	1857.	1856.	1855.
In 125 Districts and 23 Sub-districts, comprising the <i>Chief Towns</i> .....	64,322	571,601	57,631	56,756	57,409	65,596	60,132	52,086	51,985
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly Small Towns and Country Parishes ...	50,220	480,515	47,286	46,167	51,945	52,957	50,444	44,152	45,037
All England .....	114,542	1,052,116	104,917	102,923	109,354	118,553	110,576	96,238	97,022

AREA, POPULATION, DEATHS, and MORTALITY per Cent. in the Autumn Quarters, ended 31st September, 1852-62.

GROUPS.	Area in Statute Acres. (England.)	Population Enumerated. (England.)		Deaths in 10 Autumn Quarters, 1852-61.	Average Annual Rate of Mortality per Cent. of 10 Autumn Quarters, 1852-61.	Annual Rate of Mortality per Cent. in the Autumn Quarter, 1862.
		March 31st, 1851.	April 8th, 1861.			
In 125 Districts, and 23 Sub-districts, comprising the <i>Chief Towns</i> .....	No. 2,149,768	No. 8,247,017	No. 9,806,780	No. 571,601	Per ct. 2·474	Per ct. 2·531
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly <i>Small Towns and Country Parishes</i> .....	35,175,115	9,680,592	10,259,444	480,515	1·900	1·924
All England .....	37,324,883	17,927,609	20,066,224	1,052,116	2·171	2·226



seats of commerce and manufacture. But whatever be the sanitary condition of the towns and villages they inhabit, human beings must be affected by the atmosphere in which they are immersed, and the effects of which they can but partially control; and as the cotton districts participated with the rest of the kingdom in the benefit of a healthy summer, they have also suffered, like other parts, from a less healthy autumn. The mortality rose from 2·46 per cent., the mean rate of the two previous autumns, to 2·66 per cent., but in London it also rose from 2·22 to 2·44. Further, the mortality did not increase quite so much in Lancashire and Cheshire as it did in Yorkshire.

It will tend to strengthen the conclusion that the increase of mortality in Lancashire in the last quarter was not caused directly by famine, nor indirectly by diseases induced or aggravated by it, if it be stated, in addition to facts that have been mentioned above, that of the twenty-six districts, of which that county is composed, while a certain number exhibited an increase of deaths over those of the corresponding quarter in 1861, there was in an equal number of districts an actual decrease. The districts of Bolton, Manchester, Salford, Burnley, and Preston are amongst those that stand in the latter more favourable category. The munificence of the nation, aided by its kinsfolk in other lands, who "have brought their food from afar," has hitherto averted the last, direst extremity, the death of a people by famine. Amongst elements of the situation that have been conducive to health, are the cheapness of provisions, a winter in great part unusually mild, increase of maternal care, recreation out of doors, and perhaps, for many men and women who are not robust, a season of needful rest. The future of the "cotton-famine" is still undetermined,—in the language of the Central Executive Committee it may be even "full of gloom and uncertainty," and to "chill the sympathy or arrest the efforts" that have been evoked, would be rash,—but that which is past may be subject of congratulation; and it is now known that the history of the distress is not written in the death-register of the year that has closed.

The deaths in the district of Liverpool rose from 1,883 and 2,193, the numbers in the corresponding quarters of 1860-1, to 2,625 last quarter; those in West Derby rose from 1,111 and 1,472 to 1,726. A great part of this formidable increase has been caused by the ravages of scarlatina. This disease caused 50 out of 105 deaths in the Clowance sub-district in Devonshire. Of 203 deaths in Kingston (Portsea Island) no less than 126 were those of children from scarlatina or other fever, and croup. A very malignant form of scarlatina raised the deaths much above the average at Halstead, in Essex; and, it is reported, in many other parts. Diphtheria caused a third part of the mortality at Hailsham in Sussex, and it is stated that it has been very prevalent in South Walsham, in Norfolk where, out of 34 deaths from all causes, 13 were from this disease, and 9 of these occurred in the parish of Beighton. Diphtheria was very prevalent in Diss, Norfolk, and trebled the average mortality in the parish of Dickleburgh. Measles has been unusually rife and fatal in Falmouth; hardly a family with children escaped, and many adults were attacked by it.

MARRIAGES Registered in Quarters ended 30th September, 1862-60; and  
BIRTHS and DEATHS in Quarters ended 31st December, 1862-60.

1	2	3	4	5	6
DIVISIONS. (England and Wales.)	AREA in Statute	POPULATION, 1861. (Persons.)	MARRIAGES in Quarters ended 30th September.		
			'62.	'61.	'60.
ENGLD. & WALES.... Totals	Acres. 37,324,883	No. 20,066,224	No. 40,585	No. 39,892	No. 40,541
I. London .....	77,997	2,803,989	8,067	7,347	7,708
II. South-Eastern .....	4,065,935	1,847,661	3,489	3,236	3,184
III. South Midland .....	3,201,290	1,295,497	2,032	1,971	1,972
IV. Eastern .....	3,214,099	1,142,580	1,639	1,553	1,563
V. South-Western .....	4,993,660	1,835,714	3,351	3,371	3,260
VI. West Midland .....	3,865,332	2,436,568	4,872	4,625	4,860
VII. North Midland .....	3,540,797	1,288,928	2,113	2,120	2,253
VIII. North-Western .....	2,000,227	2,935,540	6,376	6,079	7,321
IX. Yorkshire .....	3,654,636	2,015,541	4,128	4,247	4,159
X. Northern .....	3,492,322	1,151,372	2,285	2,248	2,126
XI. Monmthsh. & Wales	5,218,588	1,312,834	2,233	2,095	2,135

7	8	9	10	11	12	13
DIVISIONS. (England and Wales.)	BIRTHS in Quarters ended 31st December.			DEATHS in Quarters ended 31st December.		
	'62.	'61.	'60.	'62.	'61.	'60.
ENGLD. & WALES.... Totals	No. 171,811	No. 166,174	No. 162,719	No. 114,542	No. 104,917	No. 102,923
I. London .....	23,783	23,014	23,739	17,717	15,866	15,618
II. South-Eastern .....	15,057	14,442	13,717	8,895	8,452	8,161
III. South Midland .....	10,628	10,213	9,948	6,389	6,176	6,020
IV. Eastern .....	9,145	8,717	8,358	5,690	5,548	5,253
V. South-Western .....	14,824	13,711	13,441	8,826	8,479	8,301
VI. West Midland .....	21,329	20,999	20,308	14,306	11,792	12,020
VII. North Midland .....	10,980	10,764	10,580	6,401	6,068	5,889
VIII. North-Western .....	26,444	26,160	24,906	20,186	19,265	17,196
IX. Yorkshire .....	18,426	17,607	17,593	12,834	10,937	11,684
X. Northern .....	10,830	10,461	9,955	6,901	6,205	6,295
XI. Monmthsh. & Wales	10,365	10,086	10,174	6,397	6,129	6,486



## REMARKS ON THE WEATHER

DURING THE QUARTER ENDING 31ST DECEMBER, 1862.

By JAMES GLAISHER, ESQ., F.R.S., &c., *Sec. of the British Meteorological Society.*

From the beginning of the quarter to the 17th the weather was warm, the excess of temperature amounting to  $4\frac{1}{2}^{\circ}$  daily; and to  $3\frac{1}{2}^{\circ}$  for the 35 days ending October 17th. On the 8th a variable period set in and continued to the 30th, the average deficiency of temperature was  $1\frac{1}{2}^{\circ}$  daily. This was followed by a week of warm weather; a cold period set in on November 6th and continued to December 2nd, a deficiency of temperature being experienced of  $4\frac{1}{2}^{\circ}$  daily; and from December 3rd to the end of the quarter there was an average excess to the same amount, viz.,  $4\frac{1}{2}^{\circ}$  daily.

The mean temperature of the month of October was  $51^{\circ}\cdot 8$ , being higher than any October since 1847, with the exception of 1857 and 1861, which were  $52^{\circ}\cdot 9$  and  $54^{\circ}\cdot 9$  respectively.

The mean temperature of the month of November was  $39^{\circ}\cdot 8$ , being lower than any November since 1829, with the exception of 1851 and 1858, which were  $37^{\circ}\cdot 9$  and  $38^{\circ}\cdot 6$  respectively.

The mean temperature of the month of December was  $43^{\circ}\cdot 6$ , being higher than any December since 1843, excepting the years 1848, 1852, and 1857, which were  $44^{\circ}\cdot 0$ ,  $47^{\circ}\cdot 6$ , and  $45^{\circ}\cdot 1$  respectively.

The mean high day temperature was  $1^{\circ}\cdot 9$  in excess in October,  $3^{\circ}\cdot 4$  in defect in November, and  $3^{\circ}\cdot 0$  in excess in December.

The mean low night temperature was  $1^{\circ}\cdot 7$  in excess in October,  $3^{\circ}\cdot 2$  in defect in November, and  $3^{\circ}\cdot 1$  in excess in December.

Therefore both the days and nights in October and December were warm, and in November both were cold.

The mean temperature of the air was  $1^{\circ}\cdot 4$  in excess in October,  $4^{\circ}\cdot 4$  in defect in November, and  $3^{\circ}\cdot 5$  in excess in December.

The mean temperature of the dew point was  $2^{\circ}\cdot 4$  in excess in October,  $2^{\circ}\cdot 6$  in defect in November, and  $3^{\circ}\cdot 4$  in excess in December.

The degree of humidity was above its average in the months of October and November, and in defect in December.

The pressure of the atmosphere was  $0\cdot 03$  in excess in October,  $0\cdot 05$  inch in excess in November, and  $0\cdot 05$  inch in excess in December.

The fall of rain was  $4\cdot 0$  inches in October,  $1\cdot 0$  inch in November, and  $1\cdot 6$  inch in December; the total fall for the quarter was  $6\cdot 6$  inches, being  $\frac{1}{2}$  an inch above the average of the preceding 43 years.

The total fall of rain for the year  $26\cdot 2$  inches, being  $1\cdot 2$  inches above the average.

The fall of rain for the year 1862 has varied from 20·4 inches at Scarborough, to 54·4 inches at Stonyhurst.

The mean temperature of the air at Greenwich in the three months ending November, constituting the three autumn months, was 49°·8, being 0°·4 above the average of the preceding 91 years.

1862. Months.		Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
		Air.			Evaporation.		Dew Point.		Air—Daily Range.		Water of the Thames				
		Mean.	Diff. from Average of 91 Years.	Diff. from Average of 21 Years.	Mean.	Diff. from Average of 21 Years.	Mean.	Diff. from Average of 21 Years.	Mean.	Diff. from Average of 21 Years.					
Oct. ....	51·8	0	0	0	50·2	0	0	0	0	0	55·4	In. ·348	In. +·023	Gr. 3·8	Gr. +0·1
Nov. ....	39·8	-2·6	-4·4		38·8	-2·9	37·4	-2·6	11·5	-0·2	44·1	·224	--·029	2·5	-0·4
Dec. ....	43·6	+4·6	+3·5		42·1	-3·5	40·3	+3·4	9·4	-0·1	42·2	·250	+·029	2·8	+0·2
Mean.....	45·0	+1·4	+0·2		43·7	+0·8	42·1	+1·0	11·9	-0·0	47·2	·272	+·009	3·0	0·0

1862. Months.		Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.				
		Mean.	Diff. from Average of 21 Years.	Mean.	Diff. from Average of 21 Years.	Mean.	Diff. from Average of 21 Years.	Amnt.	Diff. from Average of 46 Years.		Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.
											At or below 30°.	Between 30° and 40°.	Above 40°.		
Oct. ....	89	+ 2	In. 29·726	+·029	Gr. 538	- 1	In. 4·0	+2·2	Miles. 288	3	9	19	25·0	52·5	
Nov. ....	92	+ 3	29·793	+·046	553	+ 6	1·0	-1·4	172	14	12	4	18·0	47·0	
Dec. ....	88	- 1	29·865	+·052	550	- 2	1·6	-0·3	324	9	15	7	27·6	47·7	
Mean.....	89	+ 1	29·795	+·042	547	+ 1	Sum 6·6	Sum +0·5	Mean 261	Sum 26	Sum 36	Sum 30	Lowest 18·0	Highest 52·5	

*Note.*—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.

*Belvoir Castle.* Wheat sowing began about the middle of October, and a large quantity was sown before the end of the month; the seed time has, on the whole, been very good. Turnips, which seemed good at the commencement of the quarter, turned out very indifferent before the end. Very extraordinary crop of acorns. Potatoes going off. Horse chesnut and poplar trees divested of leaves on November 8th.

*Bywell.* The grain crops were secured along the banks of the Tyne early in October; they are in good condition, the yield being about the average. On high grounds there was grain uncut in the month of November. Potatoes much below an average crop; the quality is good, but there is a partial disease. Turnips looking well, and a fair crop.



## ENGLAND.—Meteorological Table, Quarter ended 31st December, 1862.

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Range of Tem- perature in the Quarter.	Mean Monthly Range of Tem- perature.	Mean Daily Range of Tem- perature.	Mean Tem- perature of the Air.	Mean Degree of Hu- midity.
	in.	°	°	°	°	°	°	
Guernsey .....	29·710	69·0	37·0	32·0	21·0	6·1	49·3	83
Exeter .....	29·708	65·4	25·3	40·1	29·6	9·7	46·7	84
Ventnor .....	29·706	67·0	31·0	36·0	25·0	7·6	48·4	86
Barnstaple .....	29·682	67·5	27·0	40·5	31·3	10·7	47·5	85
Royal Observatory	29·689	71·7	24·8	46·9	33·0	11·9	45·0	89
Royston.....	29·685	69·8	24·2	45·6	32·6	9·2	44·0	90
Lampeter .....	29·681	68·0	16·2	51·8	37·3	14·0	44·6	86
Norwich.....	29·682	72·5	28·5	44·0	30·8	9·8	45·3	88
Belvoir Castle ...	29·664	70·5	22·5	48·0	33·8	12·3	43·5	88
Liverpool .....	29·675	64·4	29·7	34·7	27·2	7·7	45·9	85
Wakefield .....	29·670	70·4	17·2	53·2	37·3	13·3	43·6	86
Leeds.....	29·661	68·0	21·0	47·0	33·0	11·9	42·4	86
Stonyhurst.....	29·648	64·5	21·4	43·1	33·4	10·9	43·1	83
York .....	29·623	66·0	23·0	43·0	30·5	10·8	43·1	89
Scarborough .....	29·630	66·0	30·0	33·0	17·8	7·6	43·8	94
North Shields ...	29·580	66·3	24·8	41·5	29·6	8·3	49·1	85

10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					Mean Amount of Cloud.	RAIN.	
	Mean estimated Strength.	Relative Proportion of					Number of Days on which it fell.	Amount collected.
		N.	E.	S.	W.			
								in.
Guernsey .....	1·7	8	5	7	10	6·0	55	13·9
Exeter .....	1·2	8	5	8	10	5·6	66	7·2
Ventnor .....	—	5	8	8	10	—	34	11·6
Barnstaple .....	1·3	6	6	8	10	4·3	60	13·5
Royal Observatory	0·8	6	5	8	11	7·3	41	6·7
Royston.....	—	7	4	8	10	6·5	76	5·6
Lampeter .....	0·6	5	5	10	10	6·4	60	12·5
Norwich.....	1·6	5	6	8	11	6·9	40	5·8
Belvoir Castle ...	1·6	5	2	11	12	7·9	48	8·4
Liverpool .....	1·4	5	4	9	12	6·9	53	7·4
Wakefield .....	1·6	7	5	8	11	6·6	49	6·5
Leeds.....	1·3	5	4	11	11	7·6	47	5·9
Stonyhurst.....	0·8	7	6	6	11	7·0	59	15·7
York .....	—	5	5	6	15	—	—	5·0
Scarborough .....	2·7	5	4	9	12	—	21	2·7
North Shields ...	2·0	6	3	7	14	5·6	56	3·8

## No. II.—SCOTLAND.

MARRIAGES, BIRTHS, AND DEATHS IN THE QUARTER  
ENDED 31ST DECEMBER, 1862.

**BIRTHS.**—25,484 births were registered in Scotland during the fourth quarter of the year 1862, which gives the annual proportion of the quarter for 330 Births in every ten thousand persons of the estimated population, or one birth to every 30 persons. The mean annual proportion of births for the same quarter during the six previous years was 339 births in every ten thousand persons; so that the falling off in the number of births has been very marked during the fourth quarter of the year 1862. Low, however, as was the proportion of births during the closing quarter of 1852, it is considerably above the English average of births for the fourth quarter; the ten years' average annual birth-rate of the fourth quarter in England being 323 in every ten thousand persons. The English rate for the same quarter, however, exceeded that of Scotland; for during the fourth quarter of 1862, the births in England were in the proportion of 333 births in every ten thousand persons. Of the children born, 13,155 were boys, and 12,329 girls, being in the high proportion of 106·7 boys for every 100 girls.

The proportion of births in the town and country districts varied considerably. Thus, in the 126 town districts (embracing almost all the towns with a population of 2,000 and upwards,) 14,422 births were registered; while in the 881 country districts (embracing the remainder of the population of Scotland), the births amounted to 11,062, thus indicating an annual proportion for the quarter of 356 births in the towns, but only 303 births in the country districts, for every ten thousand persons in each of these respective divisions.

Of the 25,484 births, 22,956 were legitimate, and 2,528 illegitimate, being in the proportion of 1 illegitimate in every 10 births, or 9·9 per cent. of the births illegitimate. As usual, this proportion of illegitimate births was highest in the country, and lowest in the town, districts, being only 9·6 per cent. of the births in the town, but 10·2 per cent. of the births in the country, districts.

**DEATHS.**—16,145 deaths were registered in Scotland during the fourth quarter of 1862, being in the annual proportion of 209 deaths in every ten thousand of the estimated population, or one death in every 47 persons. This is a proportion considerably above the mean of the fourth quarter in the seven previous years, which only indicate a death-rate of 202 deaths in every ten thousand persons. The quarter has therefore been pre-eminently unhealthy; the fourth quarter of the year 1858 being the only one when the mortality equalled and exceeded it—the year of great commercial distress and want of employment for the labouring classes. High, however, as was the Scottish death-rate, it was higher still in England during the same quarter, the annual proportion of 222 deaths having occurred in England during the fourth quarter of 1862 for every ten thousand persons.

As usual, the deaths in the town districts greatly exceeded those in the country districts. Thus, in the 126 town districts, 10,423 deaths were registered, but only 5,722 in the 881 country districts, indicating an annual death-rate during the quarter of 257 deaths in the town districts in every ten thousand persons, but only 156 deaths in the town districts, in every ten thousand persons, but only 156 deaths in the country districts in a like population.

Of the deaths, 4,783 were registered in October, 5,209 in November, and 6,153 in December; thus indicating 154 deaths daily in Scotland during October, 173 daily during November, and 198 daily during December.

**INCREASE OF POPULATION.**—The births during the quarter exceeded the deaths by 9,339, and by that number the population would have increased had there been no emigration. During the quarter, however, the Emigration Commissioners ascertained that 25,284 persons emigrated from the ports of Great Britain and Ireland, of whom 2,958 were ascertained to be of Scottish origin. If to that



number be added 665, as the proportion of persons whose origin was not ascertained, the total number of Scottish emigrants would amount to 3,623 persons, which deducted from the excess of births over deaths, would leave only 5,716 as the increase of the population during the quarter.

**MARRIAGES.**—6,066 marriages were registered in Scotland during the quarter, being in the annual proportion of 78 marriages in every ten thousand of the estimated population. This is the lowest proportion of marriages which has occurred in Scotland during the fourth quarter since 1855; and the mean of that quarter for the seven previous years gives the proportion of 85 marriages in every ten thousand persons. This fact affords one of the strongest proofs which could be adduced of the general dulness of trade, and the consequent inability of the labouring classes to procure work. It has not been caused by the severity of the weather arresting out-of-door occupations; for though the weather has been stormy and boisterous, it has been mild and open, excepting for a few days in November. However great the Lancashire distress, therefore may have been, it is greatly to be feared that there are thousands in Scotland who, from the same causes, are suffering from the depression in trade and its consequent privations.

This depression in trade, and consequent falling off in the number of marriages, has been most strongly marked in the town districts, where all the great commercial activity exists, and has been comparatively unfelt by the rural districts. Thus, during the fourth quarter of 1861, the proportion of marriages in the town districts was 93 marriages in every ten thousand persons; but during the fourth quarter of 1862, the proportion was only 85 marriages in a like population. In the rural districts, the falling off in the proportion of the marriages was very much less, seeing that during the fourth quarter of 1861, the proportion was 74 marriages in every ten thousand persons; which only fell to 70 marriages in a like population during the fourth quarter of 1862.

**HEALTH OF THE POPULATION.**—Much sickness prevailed among the population during the quarter; and that to an extent even disproportioned to the deaths, numerous as they were.

**WEATHER.**—The weather has been rather peculiar during the quarter, and remarkable in this, that November had a mean temperature greatly below that of December. During October, the weather, though boisterous, from the unusual prevalence of high winds, was comparatively mild, with a mean temperature of  $47^{\circ}\cdot 1$ , and was chiefly characterized by the excessive fall of rain, apparently brought up by these stormy west and south-west winds. During November, again a severe storm of snow, preceded and followed by intense frost, occurred during its second week. The frequent frosts during the month had the effect of reducing its mean temperature to  $37^{\circ}\cdot 1$ , or nearly three degrees of temperature lower than the average. During December, again the balmy south-western breezes were the prevalent currents of air which played over Scotland, so that the month felt balmy and warm after the stormy November, and the mean temperature exceeded its average more than that of November fell below it.  $41^{\circ}\cdot 8$  was the mean temperature of December; and, like October, the fall of rain was in excess of former years.

The mean barometric pressure, corrected to the sea level and to  $32^{\circ}$ , was  $29\cdot 620$  inches in October,  $29\cdot 897$  inches in November, and  $29\cdot 767$  in December. The mean temperature was  $47^{\circ}\cdot 1$  in October,  $37^{\circ}\cdot 1$  in November, and  $41^{\circ}\cdot 8$  in December. The mean monthly range of temperature was  $32^{\circ}\cdot 8$  in October,  $33^{\circ}\cdot 3$  in November, and  $22^{\circ}\cdot 7$  in December. The mean daily range of temperature was  $12^{\circ}\cdot 7$  in October,  $11^{\circ}\cdot 0$  in November, and  $8^{\circ}\cdot 7$  in December. The absolute lowest temperature, as indicated by the black bulb thermometer, was  $13^{\circ}$  in October,  $8^{\circ}$  in November, and  $15^{\circ}$  in December. The mean dew-point temperature was  $42^{\circ}\cdot 8$  in October,  $33^{\circ}\cdot 6$  in November, and  $38^{\circ}\cdot 5$  in December. The mean degree of humidity of the air was 88 in October, 90 in November, and 89 in December. Rain or snow fell on 19 days in October, 10 days in November, and 21 days in December—with a mean depth of  $6\cdot 32$  inches in October,  $2\cdot 41$  inches in November, and  $5\cdot 20$  inches in December. Winds with an easterly point blew 4 days in October, 7 days in November, and 4 days in December. Winds with a westerly point blew 21 days in October, 13 days in November, and 22 days in December.

SCOTLAND.—MARRIAGES, BIRTHS, and DEATHS Registered in the Quarter ended 31st December, 1862.

1	2	2	4	5	6
DIVISIONS. (Scotland,)	AREA in Statute	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
	Acres.	No.	No.	No.	No.
SCOTLAND.....Totals	19,639,377	3,062,294	6,066	25,484	16,145
I. Northern .....	2,261,622	130,422	252	943	409
II. North-Western .....	4,739,876	167,329	209	1,179	662
III. North-Eastern .....	2,429,594	366,783	783	2,884	1,596
IV. East Midland .....	2,790,492	523,822	1,070	4,256	2,461
V. West Midland .....	2,693,176	242,507	410	1,809	1,131
VI. South-Western .....	1,462,397	1,008,253	2,064	9,214	6,283
VII. South-Eastern .....	1,192,524	408,962	879	3,582	2,620
VIII. Southern .....	2,069,696	214,216	399	1,617	983

No. III.—GREAT BRITAIN.

SUMMARY of MARRIAGES, in the Quarter ended 30th September; and BIRTHS, and DEATHS, in the Quarter ended 31st December, 1862.

COUNTRIES.	AREA in Statute	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
	Acres.	No.	No.	No.	No.
England and Wales.....	37,324,883	20,066,224	40,585	171,811	114,542
Scotland .....	19,639,377	3,062,294	4,558	25,484	16,145
GREAT BRITAIN .....	56,964,260	23,128,518	45,143	197,295	130,687



Trade of United Kingdom, 1862-61-60.—*Distribution of Exports from United Kingdom, according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.*

Merchandise (excluding Gold and Silver), Imported from, and Exported to, the following Foreign Countries, &c. (The unit 000's are omitted.)	First Nine Months.					
	1862.		1861.		1860.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
<b>I.—FOREIGN COUNTRIES:</b>						
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	£ 12,402,	£ 3,279,	£ 10,299,	£ 4,014,	£ 13,505,	£ 3,964,
Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium	17,709,	16,072,	16,038,	16,015,	17,977,	12,206,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	19,259,	11,168,	18,039,	10,661,	16,563,	7,814,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	3,481,	5,481,	3,056,	6,037,	3,293,	4,696,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	11,982,	4,834,	9,536,	4,371,	10,763,	5,927,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	316,	143,	427,	124,	162,	154,
Western Africa	1,168,	718,	1,004,	615,	1,143,	695,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands	—	57,	6,	38,	40,	81,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	813,	1,041,	847,	1,500,	869,	1,391,
South Sea Islands	—	—	—	93,	—	18,
China, including Hong Kong	8,865,	2,544,	6,913,	4,107,	6,803,	4,055,
United States of America	18,502,	10,468,	43,631,	6,803,	33,782,	16,235,
Mexico and Central America	754,	559,	477,	647,	451,	464,
Foreign West Indies and Hayti	3,709,	2,383,	3,670,	1,772,	2,836,	1,753,
South America (Northern), New Granada, Venezuela, and Ecuador	661,	743,	433,	1,105,	504,	926,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia	3,803,	1,220,	4,130,	1,929,	3,577,	2,242,
„ (Atlantic) Brazil, Uruguay, and Buenos Ayres	4,278,	3,869,	3,248,	5,021,	3,134,	5,101,
Whale Fisheries; Grnlnld., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	50,	10,	19,	6,	92,	4,
<i>Total.—Foreign Countries</i>	107,752,	64,589,	121,774,	64,858,	115,514,	71,726,
<b>II.—BRITISH POSSESSIONS:</b>						
British India, Ceylon, and Singapore	20,599,	12,690,	15,803,	13,587,	12,558,	14,897,
Austral. Cols.—New South Wales and Victoria	4,311,	5,920,	4,073,	5,819,	4,086,	5,945,
„ „ So. Aus., W. Aus., Tasm., and N. Zea.	1,818,	1,901,	1,741,	1,648,	1,645,	1,413,
British North America	5,208,	3,536,	5,497,	3,461,	4,124,	3,441,
„ „ W. Indies with Btsh. Guiana & Honduras	5,391,	2,289,	4,832,	1,784,	5,060,	1,748,
Cape and Natal	937,	1,424,	818,	1,479,	1,174,	1,450,
St. W. Co. of Af., Ascension and St. Helena	142,	299,	120,	257,	112,	244,
Mauritius	902,	410,	1,814,	410,	1,272,	365,
Channel Islands	494,	614,	491,	492,	515,	495,
<i>Total.—British Possessions</i>	39,802,	29,083,	35,189,	28,937,	30,546,	29,998,
<i>General Total</i>	£ 147,554,	£ 93,672,	£ 156,963,	£ 93,795,	£ 146,060,	£ 101,724,

IMPORTS.—(United Kingdom.)—First Eleven Months (*January—November*), 1862-61-60-59-58.—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

(First Eleven Months.) (000's omitted.) FOREIGN ARTICLES IMPORTED.		1862.	1861.	1860.	1859.	1858.
		£	£	£	£	£
RAW MATLS.— <i>Textile.</i>	Cotton Wool ....	23,598,	35,940,	31,567,	28,762,	26,346,
	Wool (Sheep's)..	10,492,	8,735,	9,727,	8,791,	7,717,
	Silk .....	14,243,	7,090,	7,881,	8,904,	5,488,
	Flax .....	4,694,	3,019,	3,377,	3,463,	2,708,
	Hemp .....	2,253,	1,637,	1,509,	2,205,	1,520,
	Indigo .....	2,360,	2,698,	2,403,	1,888,	2,167,
		57,640,	59,119,	56,464,	54,013,	45,946,
,, <i>Various.</i>	Hides .....	2,560,	2,377,	2,801,	2,795,	2,005,
	Oils .....	3,204,	2,987,	3,334,	2,846,	2,979,
	Metals .....	3,816,	3,164,	3,442,	3,221,	3,191,
	Tallow .....	1,770,	2,272,	2,815,	2,547,	2,240,
	Timber.....	8,465,	9,228,	8,366,	7,002,	4,638,
		19,815,	20,028,	20,758,	18,411,	15,053,
,, <i>Agrethl.</i>	Guano .....	1,049,	1,781,	1,183,	720,	3,634,
	Seeds .....	2,553,	2,663,	2,697,	2,570,	2,005,
		3,602,	4,444,	3,880,	3,290,	5,639,
TROPICAL, & C., PRODUCE.	Tea ... ..	7,827,	5,895,	5,932,	4,510,	4,599,
	Coffee .....	3,057,	2,424,	2,175,	1,788,	1,505,
	Sugar & Molasses	11,276,	12,431,	11,722,	11,322,	11,868,
	Tobacco ....	1,790,	1,625,	984,	1,068,	1,522,
	Rice .....	2,069,	1,697,	778,	658,	1,475,
	Fruits .....	1,027,	1,155,	954,	950,	569,
	Wine .....	3,273,	3,563,	3,883,	2,320,	1,803,
	Spirits .....	1,470,	1,567,	1,769,	1,993,	1,059,
		31,789,	30,357,	28,197,	24,609,	24,400,
FOOD .....	Grain and Meal..	35,063,	31,568,	27,320,	16,558,	18,714,
	Provisions .....	6,858,	5,958,	5,036,	2,986,	2,880,
		41,921,	37,526,	32,356,	19,544,	21,594,
Remainder of Enumerated Articles .....		3,499,	3,239,	3,232,	2,966,	2,586,
TOTAL ENUMERATED IMPORTS....		158,266,	154,713,	144,887,	122,833,	115,218,
Add for UNENUMERATED IMPORTS (say)		39,561,	38,678,	36,222,	30,708,	28,804,
TOTAL IMPORTS .....		197,827,	193,391,	181,109,	153,541,	144,022,



**EXPORTS. — (United Kingdom.)—Whole Years, 1862-61-60-59-58.—Declared Real Value, at Port of Shipment, of Articles of BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.**

(Whole Year.) (Unit 000's omitted.) BRITISH PRODUCE, &c., EXPORTED.		1862.	1861.	1860.	1859.	1858.
		£	£	£	£	£
<b>MANFRS.—Textile.</b>	<b>Cotton Manufactures..</b>	30,569,	37,544,	42,138,	38,743,	33,402,
	„ Yarn .....	6,203,	9,293,	9,875,	9,466,	9,753,
	<b>Woollen Manufactures</b>	13,147,	11,141,	12,164,	12,033,	9,778,
	„ Yarn .....	3,854,	3,546,	3,844,	3,080,	2,954,
	<b>Silk Manufactures ...</b>	2,015,	2,036,	2,106,	2,145,	1,863,
	„ Yarn .....	346,	276,	295,	207,	229,
	<b>Linen Manufactures....</b>	5,131,	3,859,	4,802,	4,607,	4,124,
	„ Yarn .....	1,852,	1,616,	1,801,	1,685,	1,739,
		63,117,	69,311,	77,025,	71,966,	63,667,
	<b>„ Sewed. Apparel .....</b>	2,556,	2,154,	2,157,	2,191,	1,944,
	<b>Haberd. and Millnry.</b>	3,592,	3,423,	4,011,	4,289,	3,474,
		6,148,	5,577,	6,168,	6,480,	5,418,
<b>METALS .....</b>	<b>Hardware.....</b>	3,346,	3,425,	3,772,	3,826,	3,280,
	<b>Machinery .....</b>	4,097,	4,220,	3,825,	3,701,	3,604,
	<b>Iron .....</b>	11,302,	10,342,	12,158,	12,327,	11,236,
	<b>Copper and Brass.....</b>	2,823,	2,313,	3,002,	2,600,	2,854,
	<b>Lead and Tin .....</b>	2,729,	1,822,	2,562,	2,552,	2,238,
	<b>Coals and Culm .....</b>	3,750,	3,593,	3,322,	3,266,	3,053,
		28,047,	25,715,	28,641,	28,272,	26,265,
<b>Ceramic Manufcts.</b>	<b>Earthenware and Glass</b>	1,863,	1,660,	2,094,	1,921,	1,721,
<b>Indigenous Mnfrs.</b>	<b>Beer and Ale .....</b>	1,594,	1,417,	1,864,	2,116,	1,852,
	<b>Butter .....</b>	379,	484,	633,	717,	541,
	<b>Cheese .....</b>	127,	131,	119,	138,	91,
	<b>Candles .....</b>	226,	279,	239,	188,	157,
	<b>Salt .....</b>	321,	370,	358,	254,	288,
	<b>Spirits .....</b>	511,	484,	287,	306,	207,
	<b>Soda .....</b>	886,	604,	963,	1,024,	813,
		4,044,	3,769,	4,463,	4,743,	3,949,
<b>Various Manufcts.</b>	<b>Books, Printed.....</b>	416,	445,	495,	478,	390,
	<b>Furniture .....</b>	276,	264,	222,	242,	258,
	<b>Leather Manufactures</b>	2,565,	2,197,	2,129,	1,998,	2,011,
	<b>Soap .....</b>	227,	230,	250,	226,	210,
	<b>Plate and Watches ...</b>	505,	449,	564,	495,	454,
	<b>Stationery.....</b>	286,	649,	750,	840,	804,
		4,275,	4,234,	4,410,	4,279,	4,127,
<b>Remainder of Enumerated Articles .....</b>		8,839,	4,556,	3,966,	3,366,	3,524,
<b>Unenumerated Articles .....</b>		7,805,	10,293,	9,076,	9,413,	7,943,
<b>TOTAL EXPORTS .....</b>		124,138,	125,115,	135,843,	130,440,	116,614,

SHIPPING.—FOREIGN TRADE.—(United Kingdom.)—Years, 1862-61-60-59.—  
*Vessels Entered and Cleared with Cargoes, including repeated Voyages, but  
excluding Government Transports.*

(Whole Year.)	1862.			1861.		1860.		1859.	
	Vessels.	Tonnage (000's omitted.)	Average Tonnage.	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)
<b>ENTERED:—</b>									
<i>Vessels belonging to—</i>	No.	Tons.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Russia .....	436	135,	310	407	125,	435	126,	346	103,
Sweden .....	963	162,	168	945	156,	1,119	182,	912	151,
Norway .....	3,121	657,	210	2,917	634,	2,862	638,	2,564	578,
Denmark .....	2,634	257,	98	2,321	226,	2,957	292,	2,771	277,
Prussia and Ger. Sts. ....	3,857	929,	240	3,457	809,	4,067	836,	3,603	799,
Holland and Belgium ....	1,778	247,	137	1,546	215,	1,758	239,	1,622	225,
France .....	2,336	197,	84	1,686	136,	2,187	186,	2,334	192,
Spain and Portugal.....	375	115,	308	436	106,	391	101,	399	94,
Italy & other Eupn. Sts.	928	267,	287	863	239,	1,057	299,	699	197,
United States .....	1,327	1,179,	888	1,932	1,647,	1,417	1,361,	1,115	1,078,
All other States .....	15	5,	346	19	7,	20	6,	24	7,
United Kingdm. & } Depds.....	17,770	4,150,	233	16,529	4,300,	18,270	4,293,	16,389	3,701,
	22,356	6,590,	295	21,060	6,304,	20,104	5,762,	19,909	5,389,
<b>Totals Entered</b>	40,126	10,740,	267	37,589	10,604,	38,374	10,055,	36,298	9,090,
<b>CLEARED:—</b>									
Russia .....	417	127,	304	413	123,	396	117,	366	109,
Sweden .....	981	163,	166	1,041	168,	1,163	185,	946	158,
Norway .....	1,974	333,	168	1,903	312,	1,746	311,	1,782	343,
Denmark .....	3,153	309,	98	3,285	323,	3,362	328,	3,161	313,
Prussia and Ger. Sts. ....	5,480	1,072,	195	5,207	990,	5,033	936,	5,117	971,
Holland and Belgium ....	2,195	331,	150	1,932	278,	2,018	319,	2,024	305,
France .....	5,070	492,	97	5,135	496,	4,068	431,	3,612	394,
Spain and Portugal.....	380	121,	318	398	107,	364	92,	377	93,
Italy & other Eupn. Sts.	1,039	297,	286	1,098	304,	1,152	332,	837	233,
United States .....	1,172	1,052,	897	1,580	1,369,	1,456	1,368,	1,158	1,091,
All other States .....	32	12,	375	23	7,	19	6,	26	8,
United Kingdm. & } Depds.....	21,893	4,309,	200	22,015	4,477,	20,777	4,425,	19,406	4,018,
	27,066	7,400,	269	26,454	6,841,	23,713	6,359,	23,701	6,224,
<b>Totals Cleared</b>	48,959	11,709,	240	48,469	11,318,	44,490	10,784,	43,107	10,242



**GOLD AND SILVER BULLION AND SPECIE. — IMPORTED AND EXPORTED. — (United Kingdom.) — Computed Real Value for the Years 1862-61-60.**

(000's at unit end omitted.)

(Whole Year.)	1862.		1861.		1860.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
<b>Imported from:—</b>	£	£	£	£	£	£
Australia .....	6,705,	—	6,331,	1,	6,719,	1,
So. Amca. and W. } Indies .....	1,631,	6,242,	1,600,	5,115,	1,180,	525,
United States and } Cal. ....	9,732,	333,	39,	28,	3,918,	875,
	18,068,	6,575,	7,970,	5,144,	11,817,	5,401,
France .....	92,	2,203,	2,505,	690,	341,	3,698,
Hanse Towns, Holl. } & Belg. ....	430,	2,707,	886,	524,	60,	966,
Prtgl., Spain, and } Gbrltr. ....	25,	120,	27,	155,	14,	272,
Mlta., Trky., and } Egypt .....	8,	13,	53,	29,	36,	19,
China .....	—	—	5,	1,	—	—
West Coast of Africa	100,	6,	78,	2,	91,	10,
All other Countries...	1,179,	128,	640,	38,	226,	27,
<b>Totals Imported</b>	9,902,	11,752,	12,164,	6,583,	12,585,	10,393,
<b>Exported to:—</b>						
France .....	6,356,	849,	998,	1,053,	10,401,	915,
Hanse Towns, Holl. } & Belg. ....	348,	655,	21,	854,	151,	593,
Prtgl., Spain, and } Gbrltr. ....	2,466,	8,	985,	3,	1,357,	1,
	9,170,	1,512,	2,004,	1,910,	11,909,	1,509,
Ind. and China (viâ } Egypt) .....	1,920,	10,710,	794,	7,280,	1,302,	8,124,
Danish West Indies....	—	—	53,	39,	21,	29,
United States .....	37,	1,	7,298,	84,	1,724,	3,
South Africa .....	—	—	133,	10,	51,	—
Mauritius .....	—	—	—	2,	—	—
Brazil .....	409,	44,	20,	150,	357,	167,
All other Countries....	4,476,	1,047,	934,	98,	278,	61,
<b>Totals Exported</b>	16,012,	13,314,	11,238,	9,573,	15,642,	9,893,
<b>Excess of Imports ....</b>	3,890,	—	926,	—	—	500,
„ <b>Exports ....</b>	—	1,562,	—	2,990,	3,057	—

## REVENUE.—(UNITED KINGDOM.)—31ST DEC., 1862-61-60-59.

*Net Produce in YEARS and QUARTERS ended 31ST DEC., 1862-61-60-59.*

[Unit 000's omitted.]

QUARTERS, ended 31st Dec.	1862.	1861.	1862.		Corresponding Quarters.	
			Less.	More.	1860.	1859.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	6,320,	6,147,	—	173,	5,861,	6,225,
Excise .....	4,000,	3,896,	—	104,	4,359,	5,360,
Stamps .....	2,187,	2,098,	—	89,	2,036,	2,018,
Taxes .....	1,270,	1,282,	12,	—	1,293,	1,424,
Post Office .....	950,	910,	—	40,	880,	830,
	14,727,	14,333,	12,	406,	14,429,	15,857,
Property Tax .....	2,931,	2,359,	—	572,	3,530,	938,
	17,658,	16,692,	12,	978,	17,959,	16,795,
Crown Lands .....	86,	84,	—	2,	83,	83,
Miscellaneous .....	635,	292,	—	343,	228,	235,
Totals .....	18,379,	17,068,	12,	1,323,	18,270,	17,113,
			NET INCR. £1,310,889			

YEARS, ended 31st Dec.	1862.	1861.	1862.		Corresponding Years.	
			Less.	More.	1860.	1859.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	24,036,	23,774,	—	262,	23,032,	24,825,
Excise .....	17,534,	18,161,	627,	—	19,069,	19,041,
Stamps .....	8,914,	8,488,	—	426,	8,285,	7,977,
Taxes .....	3,148,	3,119,	—	29,	3,126,	3,231,
Post Office .....	3,600,	3,500,	—	100,	3,420,	3,225,
	57,232,	57,042,	627,	817,	56,932,	58,299,
Property Tax .....	11,104,	9,962,	—	1,142,	12,902,	6,077,
	68,336,	67,004,	627,	1,959,	69,834,	64,376,
Crown Lands .....	298,	294,	—	5,	290,	282,
Miscellaneous .....	2,362,	1,306,	—	1,055,	1,843,	1,413,
Totals .....	70,996,	68,604,	627,	3,019,	71,967,	66,071,
			NET INCR. £2,392,578			



REVENUE.—(UNITED KINGDOM).—QUARTER ENDED 31ST DEC., 1862 :—  
APPLICATION.

*An Account showing the REVENUE and other RECEIPTS of the QUARTER ended 31st December, 1862; the APPLICATION of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.*

Received:—

Surplus Balance beyond the Charge of the <i>Consolidated Fund</i> for the Quarter ended 30th September, 1862, viz.:—	£
Great Britain .....	—
Ireland .....	£122,448
	<u>122,448</u>
Income received in the Quarter ended 31st December, 1862, as shown on preceding page .....	13,378,928
Amount raised per Act 23 and 24 Victoria, cap. 109, on account of Fortifications, &c. ....	250,000
Amount received in the Quarter ended 31st December, 1862, in repayment of Advances for Public Works, &c. ....	467,818
	<u>£19,219,194</u>
Balance, being the deficiency on 31st December, 1862, upon the charge of the Consolidated Fund in Great Britain, to meet the Dividends, and other charges, payable in the Quarter to 31st March, 1863, and for which Exchequer Bills (Deficiency) will be issued in that Quarter.....	2,158,512
	<u>£21,377,766</u>

Paid:—

Amount applied out of the Income for the Quarter ended 31st December, 1862, in redemption of Exchequer Bills (Deficiency), for the Quarter ended 30th September, 1862 .....	£
	3,429,902
Amount applied out of the Income to <i>Supply Services</i> in the Quarter ended 31st December, 1862 .....	9,209,769
Charge of the <i>Consolidated Fund</i> for the Quarter ended 31st December, 1862, viz.:—	
Interest of the Permanent Debt .....	£6,299,670
Terminable Debt .....	349,866
Interest of Exchequer Bills .....	90,930
„ Deficiency Bills .....	1,625
The Civil List .....	101,139
Other Charges on Consolidated Fund .....	791,761
Advances for Public Works, &c. ....	178,554
	<u>7,813,545</u>
<i>Surplus Balance</i> in Ireland beyond the Charge of the Consolidated Fund in Ireland for the Quarter ended 31st December, 1862, viz.: .....	924,490
	<u>£21,377,706</u>

CORN.—*Gazette Average Prices (ENGLAND AND WALES) Fourth Quarter of 1862.*

[This Table is communicated by H. F. JADIS, ESQ., Comptroller of Corn Returns.]

Weeks ended on a Saturday 1862.			Weekly Average. (Per Impl. Quarter.)					
			Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
			s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
October	4	.....	51 1	35 5	22 5	34 8	39 2	41 1
"	11	.....	49 6	34 8	21 5	33 4	39 5	42 3
"	18	.....	48 1	34 5	21 7	34 8	39 1	42 5
"	25	.....	48 4	34 5	21 3	34 5	39 5	41 7
Average for October ..			49 5	34 8	21 8	34 3	39 3	41 10
November	1	.....	48 7	35 1	20 10	31 6	39 2	42 3
"	8	.....	49 2	35 9	21 1	34 9	40 -	41 4
"	15	.....	49 4	36 4	21 5	32 8	39 1	41 9
"	22	.....	48 9	35 10	21 9	32 5	39 3	43 3
"	29	.....	47 8	35 4	21 3	31 -	39 3	41 4
Average for November..			48 8	35 8	21 3	32 5	39 4	42 5
December	6	.....	46 9	34 10	20 10	34 -	38 -	40 -
"	13	.....	46 10	34 9	20 7	41 3	37 10	39 5
"	20	.....	46 5	34 7	20 6	32 -	37 2	39 4
"	27	.....	45 7	34 1	20 4	33 1	36 4	37 11
Average for December ..			46 4	34 6	20 6	35 10	37 4	39 2
Average for the Quarter ..			48 2	35 -	21 2	33 9	38 8	41 0
Average for the Year ....			55 5	35 1	22 7	36 4	39 11	40 2

## RAILWAYS.—PRICES, Oct.—Dec.,—and TRAFFIC, Jan.—Dec., 1862.

Total Capital Ex- pended Mlns.	Railway.	For the (£100). Price on			Miles Open.		Total Traffic first 52 Weeks. (unit 000's omitted.)		Traffic pr. Mile pr. Wk. 52 Weeks.		Dividends per Cent. for Half Years.		
		1st Dec.	3rd Nov.	1st Oct.	'62.	'61.	'62.	'61.	'62.	'61.	30 Jun. '62.	31 Dec. '61.	30 Jun. '61.
£					No.	No.	£	£	£	£	s. d.	s. d.	s. d.
47.7	Lond. & N. Westn.	96 $\frac{3}{4}$	92 $\frac{5}{8}$	93 $\frac{3}{8}$	1,179	1,003	4,578,	4,452,	74	85	37 6	47 6	37 0
41.3	Great Western ....	66	66 $\frac{3}{8}$	66 $\frac{3}{4}$	992	964	2,973,	2,847,	56	57	5 -	30 -	22 0
13.9	" Northern ....	125 $\frac{1}{2}$	122 $\frac{3}{4}$	124 $\frac{1}{2}$	330	330	1,446,	1,409,	84	82	45 -	77 6	37 0
16.8	" Eastern ....	46 $\frac{1}{4}$	46	46 $\frac{3}{8}$	644	644	1,432,	1,402,	43	42	20 -	30 -	16 3
10.4	Brighton .....	119	124	123	247	241	1,000,	933,	78	74	50 -	70 -	50 -
14.6	South-Eastern ....	89 $\frac{1}{4}$	86	83 $\frac{1}{2}$	306	306	1,070,	1,019,	67	64	42 6	50 -	41 8
13.9	" Western ....	102 $\frac{1}{2}$	99 $\frac{3}{4}$	100	442	400	1,122,	1,014,	49	49	40 -	55 -	40 -
158.6		92	91	93 $\frac{1}{2}$	4,140	3,888	13,621,	13,076,	63	65	34 3	51 -	35 1
22.0	Midland.....	128 $\frac{3}{4}$	127 $\frac{1}{2}$	129	630	614	2,064,	2,063,	63	65	55 -	70 -	62 0
19.5	Lancsh. and York.	109 $\frac{1}{4}$	107 $\frac{7}{8}$	109 $\frac{1}{4}$	395	395	1,700,	1,913,	83	95	37 6	50 -	45 -
11.7	Sheffield and Man.	41	37 $\frac{3}{4}$	38 $\frac{3}{4}$	237	237	739,	797,	60	65	-	12 6	7 6
23.8	North-Eastern ....	99 $\frac{3}{4}$	99 $\frac{1}{4}$	97	894	867	2,050,	2,110,	44	47	42 6	50 -	52 6
77.0		94 $\frac{3}{4}$	93	93 $\frac{1}{2}$	2,156	2,113	6,553,	6,883,	58	63	45 -	45 6	41 9
9.1	Caledonian .....	115 $\frac{7}{8}$	111 $\frac{3}{4}$	109 $\frac{1}{4}$	230	230	820,	804,	68	67	50 -	55 -	50 -
5.3	Gt. S. & Wn. Irlnd.	104 $\frac{1}{2}$	106	106	329	329	422,	427,	25	25	50 -	50 -	50 -
250.0	Gen. aver. ....	95	94	95	6,855	6,560	21,416,	21,190,	60	62	36 6	49 9	39 5

Consols.—Money Prices 1st December, 93 $\frac{7}{8}$ ,—3rd November, 93 $\frac{5}{8}$ ,—1st October, 93 $\frac{7}{8}$ .

Exchequer Bills.

,, 15s. pm. ,, 14s. to 19s. pm. ,, 16s. to 22s. pm.



## BANK OF ENGLAND.—WEEKLY RETURN.

*Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the FOURTH QUARTER (Oct.—Dec.) of 1862.*

ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
1	2	3	4	5	6	7
ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
Liabilities.	DATES.	Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
Notes Issued.	(Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.		
Mlms. £	1862.	Mlms. £	Mlms. £	Mlms. £	Mlms. £	1862. Per ann.
30,90	Oct. 1 ....	11,02	3,63	16,25	21,53	24 July 2 p. ct.
30,37	" 8 ....	11,02	3,63	15,72	21,37	
30,09	" 15 ....	11,02	3,63	15,44	21,66	
29,72	" 22 ....	11,02	3,63	15,07	21,46	
29,34	" 29 ....	11,02	3,63	14,70	21,01	
29,21	Nov. 5 ....	11,02	3,63	14,56	21,10	30 Oct. 3 ..
29,17	" 12 ....	11,02	3,63	14,52	20,99	
28,91	" 19 ....	11,02	3,63	14,26	20,31	
28,73	" 26 ....	11,02	3,63	14,08	19,88	
28,74	Dec. 3 ....	11,02	3,63	14,09	19,75	
28,60	" 10 ....	11,02	3,63	13,94	19,36	
28,71	" 17 ....	11,02	3,63	14,06	19,19	
28,69	" 24 ....	11,02	3,63	14,04	19,50	
28,77	" 31 ....	11,02	3,63	14,12	19,87	

## BANKING DEPARTMENT.

8	9	10	11	12	13	14	15	16	17	18
Liabilities.					DATES. (Wdnsdys.)	Assets.				Totals of Liabi- ties and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
Mlms. £	Mlms. £	Mlms. £	Mlms. £	Mlms. £	1862.	Mlms. £	Mlms. £	Mlms. £	Mlms. £	Mlms. £
14,55	3,64	8,49	13,59	,83	Oct. 1	11,25	19,79	9,37	,70	41,11
14,55	3,65	8,33	13,53	,77	,, 8	11,25	19,75	9,00	,82	40,83
14,55	3,06	6,25	15,71	,74	,, 15	12,16	18,93	8,43	,79	40,32
14,55	3,07	5,94	15,20	,80	,, 22	11,86	18,61	8,26	,84	39,57
14,55	3,08	6,09	16,45	,72	,, 29	11,76	19,98	8,33	,82	40,89
14,55	3,08	6,27	14,98	,78	Nov. 5	11,06	19,63	8,11	,86	39,67
14,55	3,09	6,93	14,74	,78	,, 12	11,11	19,39	8,18	,87	40,09
14,55	3,09	7,39	14,00	,77	,, 19	11,11	19,16	8,60	,91	39,78
14,55	3,11	7,39	14,38	,79	,, 26	11,11	19,32	8,85	,94	40,22
14,55	3,07	8,19	13,65	,80	Dec. 3	11,03	19,33	8,99	,92	40,27
14,55	3,09	8,49	13,58	,76	,, 10	11,08	19,27	9,24	,89	40,48
14,55	3,10	8,11	14,03	,75	,, 17	11,08	19,36	9,52	,97	40,94
14,55	3,11	8,65	14,31	,65	,, 24	11,13	20,12	9,19	,83	41,27
14,55	3,12	8,34	15,47	,64	,, 31	11,24	21,15	8,90	,84	42,13

## CIRCULATION.—COUNTRY BANKS.

*Average amount of Promissory Notes in Circulation in ENGLAND and WALES, on Saturday, in each Week during the FOURTH QUARTER (Oct.—Dec.) of 1862; and in SCOTLAND and IRELAND, at the Three Dates, as under.*

ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES.	Private Banks. (Fixed Issues, 4'33.)	Joint Stock Banks. (Fixed Issues, 3'30.)	TOTAL. (Fixed Issues, 7'63.)	Four Weeks, ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2'75.)	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 6'35.)
1862.	Mlns. £	Mlns. £	Mlns. £	1862.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £
Sept. 27	3,23	2,90	6,13							
Oct. 4	3,37	3,02	6,39							
„ 11	3,47	3,04	6,51							
„ 18	3,48	3,01	6,49	Oct. 18	1,59	2,60	4,19	2,91	2,65	5,56
„ 25	3,45	2,98	6,43							
Nov. 1	3,41	2,98	6,39							
„ 8	3,37	2,97	6,34							
„ 15	3,31	2,95	6,26	Nov. 15	1,67	2,74	4,41	3,01	2,91	5,92
„ 22	3,27	2,94	6,21							
„ 29	3,24	2,90	6,14							
Dec. 6	3,17	2,85	6,02							
„ 13	3,13	2,80	5,93	Dec. 13	1,69	2,88	4,57	2,89	2,95	5,84

**FOREIGN EXCHANGES.**—*Quotations as under, LONDON on Paris, Hamburg & Calcutta, —and New York, Calcutta, Hong Kong & Sydney, on LONDON—with collateral cols.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	
DATES.	Paris.				Hamburg.				New York.	Calcutta.		Hong Kong.	Syd- ney.	Stan- dard Silver in bar in Lon- don.
	London on Paris.	Bullion as arbitrated.		Prem. or Dis. on Gold per mille.	London on Hambg.	Bullion as arbitrated.		India House.		At Calcutta on London.				
		Agnst. Engd.	For Engd.			Agnst. Engd.	For Engd.							
											3 m. d.			
1862.		pr. ct.	pr. ct.			pr. ct.	pr. ct.	pr. ct.	d.	d.	d.	pr. ct.	d.	
Oct. 4 ..	25·45	—	0·1	par	13·8	—	0·2	129	23 <sup>3</sup> / <sub>4</sub>	24 <sup>1</sup> / <sub>4</sub>	55	1 <sup>1</sup> / <sub>2</sub> p.	61 <sup>1</sup> / <sub>4</sub>	
„ 18 ..	·45	—	0·1	„	·8	—	0·1	136	„	24 <sup>5</sup> / <sub>8</sub>	„	„	61 <sup>5</sup> / <sub>8</sub>	
Nov. 1 ..	·45	—	—	<sup>1</sup> / <sub>2</sub> p.	·7 <sup>1</sup> / <sub>4</sub>	—	0·1	147	„	24 <sup>3</sup> / <sub>4</sub>	„	„	61 <sup>3</sup> / <sub>4</sub>	
„ 15 ..	·42 <sup>1</sup> / <sub>2</sub>	0·1	—	1 <sup>1</sup> / <sub>2</sub> „	·6 <sup>3</sup> / <sub>4</sub>	—	0·1	145	„	„	„	„	62 <sup>3</sup> / <sub>8</sub>	
Dec. 6 ..	·42 <sup>1</sup> / <sub>2</sub>	0·2	—	1 „	·6 <sup>3</sup> / <sub>4</sub>	—	0·3	146	„	25	„	„	61 <sup>3</sup> / <sub>8</sub>	
„ 20 ..	·50	—	0·1	<sup>1</sup> / <sub>2</sub> „	·6 <sup>3</sup> / <sub>4</sub>	—	0·2	146	„	24 <sup>7</sup> / <sub>8</sub>	„	„	61 <sup>5</sup> / <sub>8</sub>	



## JOURNAL OF THE STATISTICAL SOCIETY,

JUNE, 1863.

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REPORT of the COUNCIL for the FINANCIAL YEAR ended 31st December, 1862, and for the SESSIONAL YEAR ended March, 1863, presented at the TWENTY-NINTH Anniversary Meeting of the STATISTICAL SOCIETY, held at the Society's Rooms, 12, St. James's Square, on Saturday, 14th March, 1863; with the PROCEEDINGS of that Meeting.

RIGHT HON. SIR JOHN S. PAKINGTON, BART., M.P., G.C.B.,  
*President, in the Chair.*

THE Council have to report that the number of Fellows now on the list (March, 1863) is 365, including 67 Life Members—against 374 (including 70 Life Members) at the same date last year. The losses by death, withdrawal, and default, have been 35; the new elections are 26. In 1861-2, the losses were 23; and the new elections 24.

The Income of the Year ended 31st December, 1862 (exclusive of the Balance of 226*l.* from 1861), was 770*l.* (against 734*l.* in 1861); and the expenditure was 763*l.* (against 744*l.* in 1861), leaving a Cash Balance, on 31st December, 1862, of 233*l.* (against 226*l.* at end of 1861).

The Surplus of Assets, on 31st December, 1862, was 1,720*l.*, after providing for all Liabilities; on 31st December, 1861, it was 1,677*l.* Hence the financial condition of the Society has been satisfactorily maintained during the past year, in spite of a slight, and doubtless only temporary, falling off in the number of its Members.

The Papers read at the Monthly Meetings have maintained the reputation of the Society. They have combined scientific accuracy with practical utility, and have given rise to discussions of a highly interesting and suggestive character.

The following is a List of the Papers which have been read from March, 1862, to March, 1863:—

March, 1862.—*Dr. Mouat*.—On Prison Statistics and Discipline in Lower Bengal.

- April, 1862.—*Mr. F. Purdy*.—On the Earnings of Agricultural Labourers in Scotland and Ireland.
- May, „ *Mr. Tottie*.—On the Powers of the Inclosure Commissioners, and the Principles upon which they have exercised them.
- June, „ *Mr. John Glover*.—On the Statistics of Tonnage during the First Decade under the Navigation Law of 1849.
- „ „ *Rev. Edward Gillett*.—A Plan for the Collection of Agricultural Statistics.
- Nov., „ *Dr. E. S. Hall (of Hobarton)*.—On the Vital Statistics of Tasmania.
- Dec., „ *Mr. Hammick*.—On the Recent Population Statistics of the British Colonies and Dependencies.
- Jan., 1863.—*Dr. Leone Levi*.—On the Cotton Trade and Manufacture as affected by the Civil War in America.
- Feb., „ *Professor J. E. T. Rogers, M.A.*—On the Rationale and Working of the Patent Laws.

The Thirty-Second Meeting of the British Association was held at Cambridge, in October, 1862. The Section (F) of Economic Science and Statistics, was presided over by Edwin Chadwick, Esq., C.B., one of the original Fellows of this Society. Of the many valuable papers brought under the notice of the Section, one-half was contributed by Fellows of our own Society—a few of these have been printed in the *Journal*.

The past year, rendered memorable by the second International Exhibition, was also distinguished by the scientific meetings held in London, as the centre to which the most eminent men from every part of the world had been attracted. It was felt that this great opportunity of bringing together the representatives of science from foreign countries, and from our own provinces and colonies, should not be lost. Accordingly the members of the National Association for the Promotion of Social Science, and those of the Congr s de Bienfaisance, made London their central place of meeting, and held their respective meetings during the month of June.

The Sixth Meeting of the National Association for the Promotion of Social Science, was held at the Guildhall, under the Presidency of Lord Brougham. The proceedings and success of this meeting will be in the recollection of our Fellows, several of whom contributed Papers and took part in its discussions. The wide scope and great importance of the questions there considered, can be best estimated by a reference to the very full volume of reports which the Association has recently published.

The Congr s de Bienfaisance was held at Burlington House,



under the Presidency of the Earl of Shaftesbury. The Papers read by the Foreign Members, had a special attraction for our own Fellows, who became acquainted with the views entertained in other countries, upon subjects debated within these walls. At this Congress, too, the Fellows of this Society bore their part, as the following List of Papers will show:—

Rate of Mortality in London Hospitals, by *Dr. W. A. Guy*.

Census of the Blind, and the Deaf and Dumb in England, by  
*Mr. Hammick*.

Sketch of English Poor Laws, by *Mr. Lumley*.

Irish and Scotch Poor Laws, by *Mr. F. Purdy*.

On Factory Inspection, by *Mr. A. Redgrave*.

Among the deaths of Fellows which have taken place since the last report of the Council, there is one which demands special mention—it is that of the venerable Marquis of Lansdowne. He was one of the Founders of the Society, and its first President, and on many occasions, and in many ways, manifested the interest he took in its welfare.

The Council have placed in the Library a medallion of His Royal Highness the late Prince Consort, as a memorial of the Patron of the Society.

The Society has been recently deprived of the services of Mr. Newmarch as one of its Honorary Secretaries and as the Editor of the *Journal*. The change of circumstances in the business avocations of that gentleman, which have led to his resignation, are stated in the notice printed in the March number of the *Journal*. That notice contains some interesting suggestions by Mr. Newmarch, upon the advantage which would accrue from combining this Society, under certain conditions, with several other Associations devoted to the cultivation of cognate branches of knowledge.

The Council have expressed, in a resolution appended to the notice, their sense of the valuable services which Mr. Newmarch, as Honorary Secretary and as Editor of the *Journal*, has rendered to the Society. They have also appointed a Sub-Committee to confer with the officers or leading members of the Societies upon the plan indicated by Mr. Newmarch in his communication.

Upon the resignation of Mr. Newmarch, the Council appointed Mr. F. PURDY to succeed him as Honorary Secretary and Editor of the Society's *Journal*.

In moving the adoption of the Report, the President referred to the loss which the Society had sustained by the resignation of

Mr. Newmarch, and to the proposal made by him with reference to the amalgamation of the several Societies cultivating Social Science, a plan which he hoped to see carried out.

The Resolution, having been seconded, was carried unanimously.

A Ballot was then taken for the election of a President, Council, and Officers, for the ensuing twelvemonths, and the following was declared to be the List, viz. :—

COUNCIL AND OFFICERS FOR 1862-63.

*President.*

COLONEL W. H. SYKES, M.P., F.R.S.

*Council.*

Charles Babbage, M.A., F.R.S.  
James Bird, M.D.  
Sir John Boileau, Bart., F.R.S.  
Swinton Boulton  
Samuel Brown  
William Camps, M.D.  
William Farr, M.D., D.C.L., F.R.S.  
*Right Hon. Earl Fortescue.*  
Humphrey William Freeland, M.P.  
Sir Francis Henry Goldsmid, Bart., M.P.,  
Q.C.  
William Augustus Guy, M.B.  
James Thomas Hammick  
Frederick Hendriks  
James Heywood, F.R.S.  
Sir Rowland Hill, K.C.B.  
William Barwick Hodge

Charles Jellicoe  
Leone Levi, F.S.A.  
William Golden Lumley, LL.M.  
The Rt. Hon. Holt Mackenzie, F.R.G.S.  
Matthew Henry Marsh, M.P.  
*Right Hon. Lord Monteagle, F.R.S.*  
William Newmarch, F.R.S.  
The Right Hon. Sir John Somerset  
Pakington, Bart., M.P., G.C.B.  
Frederick Purdy  
Right Hon. Lord Stanley, M.P.  
Colonel W. H. Sykes, M.P., F.R.S.  
*Major-General Sir A. M. Tulloch,*  
*K.C.B.*  
*Richard Valpy*  
*Cornelius Walford*  
*Rev. William Whewell, D.D., F.R.S.*

*The names of the New Members of the Council are given in Italics.*

*Treasurer.*

William Farr, M.D., D.C.L., F.R.S.

*Honorary Secretaries.*

William Augustus Guy, M.B.		William Golden Lumley, LL.M.
		Frederick Purdy.

Mr. Bohn moved, and Major-General Sir A. M. Tulloch seconded, a vote of thanks to the retiring President, Council, and Officers, for their services during the past year, which was carried unanimously.

The President briefly acknowledged the compliment.



A conversation ensued as to the desirability of adjourning the discussions on the papers read at the ordinary meetings, when there was not a full opportunity for each speaker to make his observations on the same evening.

The President believed there was no law of the Society on the subject, and that it was competent for any member to move an adjournment. He was, however, in favour of prolonging the discussion till twelve or one o'clock, rather than having it adjourned. It being understood that any member could, under existing arrangements, take the sense of the meeting on this point at the time of the debate, the subject dropped.

A vote of thanks to the President brought the proceedings to a close.

The following is the Report of the Auditors:—

“ STATISTICAL SOCIETY,

“ 12, ST. JAMES’S SQUARE.

“ London, 28th January, 1863.

“ The Auditors appointed to examine the Accounts of the Statistical Society for the year 1862, herewith

“ REPORT :—

“ That they have carefully compared the Entries in the Books with the several Vouchers for the same, from the 1st January, 1862 to the 31st December, 1862, and find them perfectly correct; showing the *Receipts* (including a Balance of 226*l.* 0*s.* 11*d.* from 1861) to have been 996*l.* 4*s.* 6*d.*, and the *Payments* 763*l.* 5*s.* 2*d.*, leaving a Balance in favour of the Society of 232*l.* 19*s.* 4*d.*

“ They have also had laid before them an Estimate, made by the Council, of the *Assets* and *Liabilities* of the Society, the *former* amounting to 1,828*l.* 19*s.* 4*d.*, and the *latter* to 101*l.* -*s.* -*d.*,—showing a Balance in favour of the Society of 1,719*l.* 19*s.* 4*d.*

“ They further find that at the end of 1861, the number of Fellows was 364, of whom 31 Died, Withdrew, or became Defaulters, and 35 new Fellows were elected during the year 1862, leaving 368 as the number on the list on the 31st December, 1862.

(Signed)

“ CORNELIUS WALFORD, }  
“ H. B. HYDE, } *Auditors.*  
“ SAMUEL BROWN. }

The statement of Receipts and Payments, and Assets and Liabilities, is as follows:—

(I.)—RECEIPTS and PAYMENTS of the STATISTICAL SOCIETY for the YEAR 1862.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Balance in Bank, 31st December, 1861..	226	- 11	Rent.....	75	- -
1862.			Salaries .....	181	13 4
Dividends.....	25	19 -	Printing <i>Journal</i> .....	313	15 9
Subscriptions:—			Advertising .....	15	18 -
275 for 1862 at £2 2s... £577 10 -			Library .....	19	7 10
3 „ 1863 „ 2 2s... 6 6 -			Index and Catalogue .....	4	4 -
Arrears—15 „ 2 2s... 31 10 -			Stationery and Sundry Printing ....	49	7 6
	615	6 -	Postage and Receipt Stamps .....	16	18 4
Composition .....	21	- -	Incidental Expenses .....	17	5 6
<i>Journal</i> Sales .....	78	12 7	Ordinary Meetings .....	26	5 1
Advertisements in <i>Journal</i> .....	29	6 -	Fire and Light .....	12	2 3
			Furniture and Repairs .....	14	7 7
			Special Outlays.....	17	- -
				763	5 2
	£996	4 6	Balance carried to 1863..	232	19 4
				£996	4 6

(II.)—BALANCE SHEET of ASSETS and LIABILITIES on 31st DECEMBER, 1862.

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
Printing <i>Journal</i> for Dec., } 1862 .....	81	2 6	Cash Balance .....	232	19 4
Stationery and Sundry } Printing .....	11	6 -	Investments:—		
Advertising Dec., <i>Journal</i> ..	4	7 6	3 per Cent. Consols ... cost £300		
Index to <i>Journal</i> , vol. xxv, } 1862 .....	4	4 -	New 3 per Cents. ... „ 567		
	101	- -		867	- -
Balance in favour of Society ....	1,719	19 4	Property (Estimated Value):—		
			Books in Library.....	£400	
	£1,820	19 4	<i>Journals</i> in Stock .....	200	
			Furniture .....	100	
				700	- -
			Arrears due and recoverable (say) ..	21	- -
				£1,820	19 4



*On the RATIONALE and WORKING of the PATENT LAWS. By the*  
REV. J. E. T. ROGERS, M.A., *Professor of Political Economy in*  
*the University of Oxford; and, Tooke Professor of Economic*  
*Science and Statistics at King's College, London.*

[Read before the Statistical Society, 17th February, 1863.]

## I.

ONE of the greatest advantages which the members of this Society possess, to judge from the papers which are occasionally read at their meetings, is that of discussing on purely abstract and scientific grounds the principles on which economical facts are founded, the effect of social practices, and the speculative consequences which might ensue from the removal or modification of rules in action which are so habitual, as not to be out of the prejudice of men obviously capable of actual alteration. It has been, I believe, almost uniformly the case, that all great economical reforms, and not a few social changes of vast and increasing significance, have steadily advanced from the condition of a paradox into that of an axiom, and have met with a final acquiescence as universal as was their original condemnation. The adoption of a limitation on the hours of labour, of the sex employed in some kinds of labour, of the half-time system in the work and education of children, of the principle that able-bodied labour should not be ordinarily relieved, except under the regulations of a workhouse, and a variety of other economical reforms have, I understand, been discussed before this Society in a grave and unprejudiced manner, long before they have been approached as practical questions either by legislation or by the popular press. It is, therefore, a most important and valuable privilege that questions may be raised here and in similar societies, before conclusions derived from them are sent out to bear the brunt of that intolerance and irritability with which popular politics and popular criticism ordinarily grapple with economical novelties. And it is an equal advantage, I may be perhaps allowed to say, that while this Society discusses, it does not judge; and therefore is not, and does not affect to be, an arbiter of economical questions, but a means of ventilating evidence on the most important social problems, and the largest economical interests. The writer, therefore, of this paper feels that there is no place in which he can more unreservedly alledge the reasons which seem to justify adverse conclusions to the practice of granting patents.

## II.

I do not propose to go through the economical history of the legal sanction given to what is called property in invention. The members of this Society are well aware that in its origin the privilege of sole sale in cases where the applicant can satisfy legal authorities that *prima facie* he has been the first to devise an article which shall be in demand, and may be appropriated by others, is only a branch of that mischievous and odious prerogative which sovereigns in most European countries have assumed—that of granting monopolies. The reign of James I, in which period the worst forms of patent privilege were created, was as much characterised by the encouragement given to projectors, as inventors were then called, as by those licenses of sale, for which the crew of Mompessons were so detested. Such licenses are not extinct in our own time. Many of us have witnessed the abolition of the East India Company's privilege of sole trade with the East; all have seen the extinction of the Hudson's Bay Company; all are familiar with what is practically the monopoly of the Bank of England in the issue of a legal tender paper.

It does not follow that such sole privileges are necessarily mischievous. Most persons are agreed that the trading powers of the East India Company were a public inconvenience. A similar judgment has been passed on the Hudson's Bay Company. But on the other hand, it is not generally held that the Bank of England monopoly is hurtful to public interests. In all such matters, what is expedient to the nation at large, is always the question to an economist, though it may be contained in the apparent incongruity of a mercantile monopoly with that principle of freedom which underlies all economical reasonings, and is the basis of all material prosperity. But though a limitation on individual freedom may be necessary, it must be distinctly and continuously proved to be desirable.

## III.

The arguments in favour of the practice of securing a monopoly of sale to inventors of articles in demand are generally three. The first is, that such an invention is property, and society is bound to maintain the rights of property; that is the peaceable and secure possession of what a man has appropriated by his own labour. The second is, that the existence of this legal privilege is a powerful stimulus to invention. The third, that the privilege of sole sale, limited as it is by a defined term, is compensated by the fact that the invention is specified, published, and thus finally secured to the public after the term has expired. I purpose, with the patience of the Society, to argue on these points at a little length.



Property is necessarily that which *is capable of appropriation and appropriated*. To be appropriated it must be distinguishable. Any indefinite and indefinable claim is a nuisance. Owners of property may have a common interest, and may therefore surrender their distributive rights to a body of trustees or directors, but the interest they have is always supposed to be capable of division, limitation, and identification. No two or more persons can have the same right of property in the same single object or single utility. An acre of land, a share in a railway, a pound of sugar, a sum in consols, are property, because they can be *so* limited and identified, as that no person can be aggrieved or harmed by the limitation, or aver that the particular quantity what one man possesses—and possesses by a legal appropriation, is that which another man is just as capable of acquiring. In short, the ground on which economists recognize the existence of property, is to be found as much in the fact that a special appropriation has been made of a derived utility, similar productions of which utility are in the power of other labourers, as in the conviction that insecure possession would lead to the destruction of all productive energies. As a rule, then, all these privileges which have been possessed by individuals and corporations of the sole sale of commodities and utilities, are exploded with the common consent of all statist and economists. Whatever cannot be essentially and readily assigned to an individual, partakes of that insecurity which renders the object improprie.

Again, it is essential to the protection of property, that equal protection should be accorded to equal or similar kinds of property. The law would fall short of its obligations, if while it protected a man in the possession of his purse, it failed to protect him in his coat; if it could find a means by which to secure him peaceable possession of his land, but denied him equal security in the stock which he possesses or claims to possess, in the public funds.

Nor is that property which is naturally distributed. There is no property in air, in flowing water,—though there may in its force, for this is a power capable of limitation—or even in *feræ naturæ*. None of these have a permanent place, an assignable locality, however much the locality may be suspected, and therefore cannot, in their natural state be objects of property. The exact logical temper of English law cannot recognize what we call game as property, and can only protect it by an exaggerated law of trespass. What may be another's as readily as it may be one's own, cannot, except *in transitu*, be appropriated.

It does not follow, indeed that all property is of a material character. To omit the right of ownership which an individual may have in the indebtedness of others under private or public contracts; it is clear that a man's character is his property, and is often a very

valuable and marketable property. The sign by which a man distinguishes his work, which is at once a form of credit and an evidence of character, *i.e.*, a trademark, is as much a property as a man's signature to a check and a bill of exchange, and as fairly demands all protection which the law can give, on the general hypothesis of average caution, as are demanded for a man's land and chattels, provided he takes reasonable precaution for their safety. Apart from the relation which such a mark bears to the producer, it fulfils a great and important public requisition, though one which is constantly ignored in all reasonings on legal protection, in guarding the interest of the consumer. One may remark by the way, how generally the interests of that important personage—the consumer—are lost sight in the demand for protection to the producer.

Now the position of the patentee appears to be as follows. He believes, and perhaps on good ground, that he has discovered, and if you please, elaborated some article of considerable utility and great demand. He wishes to advertise his invention to the public, his consumer, and to guard against the contingency of the public, or any members of the public generalizing the power of producing his utility. He is willing to admit that his traditional and natural exaggeration of the merits of his own invention is checked by the fact that the public, the judges of his performance, will value his invention at its worth; that is, that it will sell or not, according to the taste or convenience of the customers which he wishes to conciliate; but on the other hand, he claims to limit their choice. His bargain is to give the public a prospective interest in the invention, in return for a temporary monopoly of the process. During the tenure of this monopoly, he allows the public the benefit of his invention at whatever price his discretion or their necessities suggest to him to impose; and he precludes the public not only from itself producing, but from the capacity of production, or from the capacity of purchase from a rival producer, however *bonâ fide* and certain the invention of such a rival is. It is the old theory in short of occupancy, of squatting, transferred to the industrial centres, or rather the highways, of modern civilisation; and of squatting upon materials and powers which are the property, not of individuals, but of the human race. Nay, the claim of the inventor is wider than that of the squatter. It more nearly resembles that which we might conceive would be made if the principle of patent were carried completely out, a demand on the part of a navigator who has discovered a new country, to prohibit, except by the payment of a royalty, any person from settling on the land in question. Such a demand is not without example in the early history of crown monopolies. It does not follow, I repeat, because certain objects are of



great utility, permanent demand, absolute necessity that individuals should be entitled to claim a prohibitive ownership in them.

What people invent—I am speaking of material utilities—is either the result of a sudden conception, or of the elaboration of well known and general natural laws. In neither case, unless the inventor assumes that his genius in discovery is shared by no other man, and that what he has invented can be invented by no other human being, or that the logical sequence by which he has made his conception available for purposes of human utility belongs to himself alone, and could not have been worked out by any other man, is he entitled to a property in such inventive process. It is hardly needful to say, that such an assertion would be a piece of insolent vanity. The law may give him a property, as the law may allow any other privilege which invades the liberty of other men; but his right has a factitious and not a natural origin; and as the law could not distinctly avow that the privilege it confers is one, the utility of which it is competent to recognize; it simply, formal and other conditions fulfilled, demands that the privilege sought for shall not contravene any existing right based upon the known application of industrial powers and processes. In other words, it grants a monopoly to the first applicant. Other persons may have discovered and elaborated the same process, but the privilege is bestowed on the earliest to ask for it. By a perfectly independent train of thought, another person may have discovered simultaneously exactly the same utility, but he has been last in the race, and he must forego his natural privilege of labour; and the consumer, whom nobody even in these days of free trade seems to think deserving of much consideration, has to bear the charges of the sole and protected producer.

#### IV.

It is the custom of those who defend the existing practice, to say that they do not claim a patent for principles, but for the application of principles. But a principle without an instance, is a logical absurdity. People discover the principles of physical science—the groundwork of all material utilities, from the observation of facts; and the inventor of a principle is generally at a long interval from the observer of those facts which are turned to marketable conveniences. The largest inductions of physical science have been made long after the facts from which these inductions are derived have been familiar processes.

But even if one allows the distinction between a principle and a process, it is not difficult to see how unequally favourable the law is to inventors. A man who discovers a mechanical contrivance which a hundred men could as well have invented as himself, and which

many frequently do invent, either simultaneously or speedily, is protected against them and the public; while another man who devises some plan which is equally, perhaps far more useful to society, and which is as much the result of thought, anxiety, and risk, as the process of any mechanician, has no such protection awarded him. If the laws were consistent, such a person should be protected equally; and the natural consequence that everybody would be protected against everybody, and that everybody would have special rights in common powers against everybody else, would bring about a fatal isolation of interests, or what is more likely, a compulsory regulation of these peculiar claims. The difference, if any, can only be one of degree.

The principle on which Mr. Mudie's circulating library is founded, is that of furnishing a succession of books at easy rates to subscribers. But the pains, the thought, the anxiety, the risk at which this principle was carried out, were as well defined and elaborate a process, as any which ever afforded the fulfilment of the day dreams of inventors,—steady demand at arbitrary prices. Mr. Mudie has no patent in his process, and is subject, no doubt, to active competition on the very plan which he elaborated.

Again, the projectors of the London and Westminster Bank had a principle, that of furnishing a system which should afford peculiar advantages to the banking public. Unless I am misinformed, the process by which they attracted custom, was that of offering interest on deposits, and trading on the difference between the rate allowed and the market rate of discount. The process was novel; the risk great; the calculations necessary, were wide, precise, and minute. They got no patent, but great hostility from a patented monopoly, the Bank of England, and from the jealous alarms of the private banks. Now they have abundant, if we can trust rumour, too abundant imitators.

It may be said that if the law fails to protect one set of industrial processes, it should not the less protect others. Not so, however, if they are precisely the same in character. Would the advocates of patents insist that such inventors as I have indicated, should have the sole privilege of their processes? They should do so in order to be consistent.

## V.

Some persons—there are names of great worth among them—have suggested that a board should be constituted which should determine the utility of patents, and award premiums or prizes for inventions of manifest utility. It is a sufficient answer to such a scheme, that both inventors and the public would view such a board with the greatest suspicion. It might be composed of two elements; a jury



of the public: or a council of inventors; who must be successful or they would be sure to condemn alien projects; who must not be successful, or they would be sure to deny merit to alien inventions; or lastly a board of permanent officers. It is difficult to see which alternative would most certainly develope gigantic jobs.

But even if they were ever so just and ever so wise, what utilities should they further? Are they to confine themselves to an estimate of the public utility of a mechanical contrivance, or to extend it to the utilities of a well devised circulating library, or a sagacious banking system? Nay more, are they not on the hypothesis of the public good, to accord the benefit to all schemes which have as their foundation a considerable public service? If so, Government will go far beyond the limits which we have assigned it in this country, and take upon itself the functions of a Providence special and almost Divine.

Mr. Erskine Clark, of Derby, has had before him in common with many worthy persons a great wish to discover the way in which habits of thrift may have scope given them among the poor. His process, and it is very elaborate, though very effective, is a penny bank. I know no patentee who has a greater right to consideration from a council of equity, appointed to interpret the utility of a process than this gentleman has. But I should be very much surprised to see the committee of the British Association recognize these claims.

But the bargain of the inventor with the public, is thoroughly one-sided. If it be his interest to keep his secret, he infallibly does so, not so much from the cause that a patent is expensive, as because it is his interest. What he demands is the right of monopoly against the public, provided that he chooses to take the public into his counsels. It is perfectly true, indeed it is insisted on by the advocates of the rights of invention, that nothing can compel him to disclose his discovery. Does he ever do so except on the ground that the profits of the monopoly would be more valuable than the profits of the secret?

The wretched impostors who traffic in the follies and weaknesses, and sometimes the vices of their fellow-men, the vendors or inventors of what are called patent medicines, never I believe communicate their valuable secrets to the public. By a very just and wise judgment, the occupier and advertiser of a nostrum, is branded by the medical profession with the name of a quack. I know no occupation in which perseverance and careful observation, and laborious thought are more lavishly given than in the medical profession, there is none certainly which entertains so sound a contempt for the inventor and monopolist of a specific, none so ready to communicate its discoveries,

## VI.

There are other parties too who decline the advantage of a patent right, and who are of a far more useful and genial turn than the patent medicine vendor. I hope I shall not in so grave a society as this be thought anything but serious when I say that that there are very few among us who have not experienced the pleasurable emotions which Messrs. Lea and Perrin's ingenious combination called Worcester sauce imparts to the eating of cold mutton. But these inventors are content with the public judgment, are satisfied with the profits which their extended trade gives them, and are willing to abide by competition. And this is only one among very many of the cases in which the inventor has exercised his undoubted privilege of vending a product, the process of which is a secret. Yet, to be consistent, the advocates of a patent system, if they affect to consider the interests of the public, should maintain that the process of all inventions should be disclosed; not that a discretion should be given to inventors, whether the public will or not, of claiming a monopoly according to their own pleasure, or of keeping their secret.

I cannot therefore discern a single characteristic in mechanical inventions which constitutes a claim to the distinctive features of property. As regards the public, I find that the purchase of articles really useful, is burdened with the charge of the capital sunk in the legal and other fees of the Patent Office, in the necessity laid upon it to compensate the particular expenses of the particular patentee (and his proofs of discovery or adaptation may have been difficult, while another man's may have been easy), and by whatever charges besides his vantage ground over other inventors may afford him to exact from the public. And I can quite conceive it possible that he may be a grievous hindrance to other inventors, without being able to reap much advantage himself, in the same way as a person who had gained a right to occupy an apple stall in the midst of a crowded thoroughfare would be to traffic and passengers. Nor do vague and angry declarations that invention is property, and the lavish use of the expressions, "pirate" and "pilfer," and "stealing the fruit of "other men's minds" and labour, prove more than that certain persons gain an advantage, rightly or wrongly, which they wish to keep. Economists are well aware of how freely terms of reproach have been lavished on those who have successfully proved economical necessities, and are not the less aware of the duty laid upon them by the abstract study of this science, that they should do their best in protecting as far as they can the interests of the general public, *i. e.* the interest of the consumers. It is needless to say that this protection consists generally in saving him from those friends, who affecting to consider his interest, are really advancing what they know to be their own.



There are persons indeed who make no small gain out of this facility for petrifying the natural powers and processes of the human mind, or at the best for diverting it from obvious paths. The fortunate purchase of some adaptation of a physical law in mechanics or chemistry, will be the foundation of a capitalist's fortune, the more so when, society having established a demand out of some new want, he is the lucky winner of the privilege of supply by mere priority of application. There are persons too who are misled with the hopes of successful invention, and who, possessed by the familiar spirit of adventurers, are thoroughly intoxicated with the dreams which the ever varying romance of patent privileges engenders. To such persons, the loss of the dream is as great a loss as that of profit to others. And there are, I do not intend the statement to be invidious, a certain number of professional persons, to whom the agency, the advocacy, and the impeachment of patent claims are the source of professional distinction and pecuniary emolument. But it does not seem that these interests should stand in the way of a critical inquiry into the rationale of the privileges they are founded on, or that the existence of a legal right should be construed as though it were a natural and equitable one.

It is said that the legalizing of patent privilege is a direct stimulus to invention. I will not delay on the question as to whether the legislative aids of bounties or protection, are, or ever will be safe and healthy motives to industrial processes. In the abstract, all economists I believe are convinced that they are nugatory, mischievous, unwholesome. The history of trade and of prices is full of evidence to the generally evil effects of such external aids. A tolerably large acquaintance with the history of prices, convinces the author of this paper that the rule has no exception. If particular cases can be defended, they must be defended on a particular showing and on special grounds. Nor is the defence that under such a system as that which has prevailed in this country, great industrial energies and vast comparative wealth have been evoked and accumulated worth a serious reputation, nor even a passing notice, if one did not remember how inveterate is the fallacy of *post hoc, ergo propter hoc*.

## VII.

The real question is to be settled by the judgment of experts, and the practical working of the patent laws on inventors. It is to be admitted that the first of these tests is of a very various kind, and it must be allowed that a decision on the second, as English industry has constantly laboured under the disadvantage, or if it sounds better, been sustained by the protection of the law, is speculative.

The classical authority on the object, and the working of the

patent laws, is the evidence in the report of the Lord's Committee, in 1851. A considerable portion of the evidence is relative to certain provisions in certain bills, then before the Houses of Parliament, but not a little information, and of the most important kind on the general operation of a system which proposes to stimulate invention by defending it, and to reward discoveries and inventions of a particular kind by a monopoly of sale, is to be found in the report in question.

As may be expected, the evidence and the opinions given by the different witnesses, are of a very conflicting character. Some treat the rights of inventors as among the sacred kinds of property, and that any invasion accorded to the public to appropriate "inventions" "which result from the labour of inventors," would be logically "extended to the results of any other class of human labour," that is to say, that the plan by which A makes a machine is *ipso facto* as much property as the machine itself. Again that the recognition of patent rights is part of the "broad principle of recognizing honesty" "by discouraging piracy," by which I conclude is meant piracy in the general sense. These are the views of Mr. Cole.

Others on the other hand are wholly averse to the continuance of patents in whole or in part. One witness avows his conviction that at present the patent law "discourages" inventions, for that while it appears to offer protection and ultimate gain to parties who are inventors, it leads to a considerably smaller number of inventions than would otherwise be brought out for the benefit of the public, and he believes that practically it involves very great loss upon the class of inventors as a body, a loss which he thinks they could not sustain, if there were no patents or no exclusive privileges at all granted to them. And the same witness enters into an elaborate account of the way in which the principle of granting patents affects the energies of inventors, and impliedly the rights of mankind to the accumulations of past knowledge, and the legitimate and necessary inferences of natural reason, stimulated by ordinary and common economical forces. Again the same witness avows his conviction, that the abolition of the whole patent system would be "an immense benefit" "to the country, and a very great benefit to that important class of" "men whom we call inventors, who are at present ruined, and their" "families ruined, and who are, he believes, a great injury to society." The witness is Sir Isambard Brunel.

It is invidious and indeed impossible to determine the comparative value of contradictory opinions on questions of fact, and questions of effect, especially in cases where the natural force of conflicting authorities is very great. I say natural, for there can be no reason to conceive that Mr. Cole's prejudices or interests would have led him to combat what I conceive are the interests of the public, or that



Sir Isambard Brunel was likely to decline or disdain a legal protection which he might have thought just and expedient. I confess to holding the expressed opinions of patent agents, of barristers whose practice is specially concerned with patent causes, and of that important class of men who are continually advocating their own capacities, and underrating the judgment of the public as to the utility of their discoveries, in slighter respect. And I do so, not from any wish to throw any doubt on their integrity or conscientiousness, but because we must needs, as such, dispute the conclusions with which habit and custom, and the general conservatism of men's minds on the special method of their special occupation, are apt to control their judgment.

Evidence for and against any patent system at all, might be multiplied out of the report to which I have alluded. It is needless however in the existence of such a record; and the study of it may be commended to those who, having the interest of the public, and of all who can claim a real or supposed property before them, wish to give a true deliverance on this question, the gravity of which if one considers either public interests, or at the least the position in which the contingent occupiers of patent rights are placed, cannot be exaggerated. It is not I think invidious to say that the mass of affirmative evidence is on the side of the doubtful, of the negative on that of the independent witnesses. Nor is the supposed right of the inventor much helped by its supporters, when the evidence of those who discuss the best way in which it may be secured in the patent office, is contrasted. Some advocate a cheap system of patents, and declare that the real harm to inventors arises from the charge which is levied on the process of security. With those who hold that invention is property, such a view is logically necessary. To put capricious charges upon the right of claiming one's own, is the worst wrong to which the holder of property can be subjected. It is difficult however for such reasoners to meet the objection urged by the opponents of a cheap patent system. It is said, and one cannot see how such a statement can be gainsaid, that a ready and cheap method of patenting would give such an opportunity for encroachment on the processes of invention and adaptation, as would bring all improvement in a very short time to a dead lock. If in fact invention is property, it should be vindicated cheaply and rapidly. If it be vindicated cheaply and rapidly, there is and can be no limit to the hindrance which inventors may put upon other peoples energies, and by implication on the increase of national wealth.

#### VIII.

I have hitherto considered this question from the view of public interest, from what appears to me to be the case in relation to the

public, who are deprived of a right on the plea that a stronger right may be urged against them. But the condition of the inventor, of the nominal plaintiff, the John Doe of the patent laws, demands some notice, even on the plea of humanity and pity.

Most persons I believe, even those who advocate most strongly the extension of facilities beyond those afforded at present for the protection of inventors interests, concur in recognising that he rarely gets a return even for his actual expenses in adapting his invention to immediate use. He is stimulated by the promises of protection held out to him by the law, to devote great time, and not a little money to the dangerous pursuit of contingent profit; of all speculations his is the most precarious. For natural reasons, the occasional success of some one man, who either in his own person, or far more frequently in the person of an assignee of the invention, the capitalist who gets the benefit of the monopoly for some small consideration; is sure to call into activity a host of speculations which cannot in the nature of things be any profit by their appropriation, however grievous an inconvenience they may be in the cause of mechanical or other improvements. A mere inventor is strongly infected with the spirit of gambling, and open to the worst misfortunes which can ensue from such spirit. Nay, he is more liable to the most dangerous forms of this mental disorder, because gamblers are more or less open to reasonings from the doctrine of chances and the occurrence of events as well as to the information they may get from the judgment of others, while the inventor, like the poet of the satirist, is ordinarily the prey of his own self love, and is the worst possible judge of the weak side in his specialty. I believe that there are more men ruined in the law courts out of patent cases, and in the exciting and dangerous visions which these legal privileges afford them than by almost any among the stimulants to unreasoning cupidity. Some indeed among those who have had experience of how dubious is the boon which the patent office affords them, are thoughtful enough to avow their distrust in all its presumed advantages; and, like the wise man of old, decline the box of Pandora, the worst among the congregated evils of which is perhaps the hope which is left at the bottom.

Most of the best inventions we are told are the work of mechanics. It is easy to see why this is. The labourer is principally urged, and the law is a fundamental one in economics, to get the greatest possible result with the least possible expenditure of *force or labour*. It is only in a more remote degree that the capitalist, the producer, is urged by the same motive. His wish is to get the largest amount of produce possible, out of the least expenditure of *capital*. The interest of the mechanic in an invention which shortens labour is immediate, of a capitalist indirect. To adopt the invention is often



an affair of cost, of risk, of substitution. Now as the mechanic is the natural inventor, and the capitalist is naturally slow to accept inventions, the makers of a system which shall give the inventor a position hostile to the employer of labour, impedes, or at least postpones, that healthy relation which should subsist between the employer of skilled labour—and the faculty of invention or adaptation differs only in degree from that of other skilled labour—and the labourer himself. If no patent laws existed, it would be to the interest of the capitalist to develop and reward the skill of those whom he employs.

I have heard reasonings similar to those which I have alleged, used by capitalists in the largest sense of the word, where occupation induces them to purchase inventions, and who are forced to secure all adaptations out of the competition to which they are subject. And it will be found in the volume of evidence to which I have referred, that several of the witnesses believe that a fuller reward to invention, and even a more healthy and regular stimulus would be accorded to this particular capacity, if no law interposed between the supply of the inventor and the demand of the capitalist.

That almost all the benefits, the solid advantages of protected invention are reaped by capitalists who have not invented themselves, or have done so in very small degree, is generally admitted. To such persons it may be that the abolition of patent rights would be a comparative loss. I say it may be, for it is not wholly certain. The opportunities for vexatious prosecution for piracy, or for infringement of rights, are so multitudinous, that the purchaser of an invention pretty surely learns that like the Bedouin, every man's hand is against him. How far the risk of infringement diminishes the payment which is made to the inventor, I cannot say, certainly it should do so; and certainly the labour of discovering whether a man's *bonâ fide* invention has not been appropriated by some other *bonâ fide* inventor, or even, as in the story told by Mr. Woodcroft, was not originally the property of Hero of Alexandria; is necessarily to be set off against the price which is procured from the capitalist. It can be no light thing to make a long and weary search through nearly 40,000 patents, specified with more or less exactness.

If, however, it be a mere question for capitalists, if the inventor after all gets the fox's, and the capitalist the lion's share, it is still less a question of sympathy and right. It is still more reduced to the lowest conception of a monopoly. Nay, the claim urged upon the public is a fiction in which the nominal plaintiff is the inventor, but the real one is a speculative capitalist.

I shall not detain the Society long with the argument that the disclosure of the invention compensates for the monopoly of the patentee. The reasoning is, as I have said, one-sided, because

the inventor is at liberty to retain as well as to disclose his invention. No one can call that a fair bargain which is voluntary on one side, and involuntary on the other. General grants, by a wholesome provision of law, are void: and by equal reason, contracts which are commenced and carried out without the *ipso facto* consent of any among the parties interested, would, I imagine, receive no mercy at the hands of lawyers, as they would deserve none in the judgment of moralists.

Even, however, if the bargain be made consciously, it may be a very bad bargain, and therefore a very inexpedient one. Any claim to an invasion on the liberty of others, is on its trial. Even mere contracts of a voluntary kind may be rescinded, if no value is received by one of the contracting parties. And I imagine, that in natural justice, the right of *bonâ fide* invention subsequent to another invention which has been patented, is at least equal. A man may at least pay off a prior mortgage with the produce of another mortgage on better terms. Not indeed, that it is politic to rescind voluntary contracts, even though they are in themselves inexpedient. But it is one thing to stand by the consequences of one's own acts, another to endure the principle that one should be for ever bound to the performance of similar acts. It is, therefore, perhaps worth while to point out in what the service of an inventor differs from the service of one who has an admitted claim to part of the produce of future industry.

Guarantees given for advances made to the community for the public service, have their foundation in natural justice. At the crisis, the community, anxious for self-preservation, and judging that the contract into which it enters is as much a prospective as an immediate benefit, mortgages its industry for a loan. It may be that it was inexpedient to create such a mortgage, it may be that it was unjust to posterity, which, nevertheless, receives a far larger beneficial inheritance from a previous generation, than it does obligations; but the contract was for a real, limitable, tangible value received. But no such proffer is made by the inventor. He claims that you shall take—not his money or his money's worth—but his priority of discovery; and he does not make terms with you by competition, or at your discretion, but demands that you shall tax yourselves for a definite period at his discretion and for his interest. The very right that he arrogates, is an acknowledgment that some one else, or may be yourself, could have supplied equally well with him. He denies the right of competition, and he even takes away the right of choice.

There is one point which I may briefly advert to in connection with the presumed originality of patented inventions. Inexperienced persons are so startled with the novelty of processes and the magnitude of results on these special kinds of human intelligence



which are made the subjects of legal monopoly, that they are apt to conceive that some transcendental and almost supernatural energy must have been the origin of these industrial processes. But to those who are moderately acquainted with facts, the chief utilities which have been patented, appear to be what they really are, little more than common place calculations. I have heard an eminent advocate of the patent system avow that the claims of the patentee are far more founded on laborious adaptation than on splendid discovery. And if this be the case, as I believe it almost invariably is, the argument is driven back again to the position which I laid down in an early part of this paper, that the system at present in existence gives a special privilege to some kinds of laborious adaptation, and denies it to others.

### IX.

The Society will probably recognise that in what I have alleged I have confined my observations to patents properly so called, and have omitted all mention of copyrights. Still less have I entered on the criticism of another class of interests which is fundamentally connected with this subject, the prudence and economical defence of endowments. I cannot, at present, even for the briefest time dwell on the latter. I only mention the case, that I may not be supposed to have ignored it; and I may perhaps conclude this paper, in which I have already trespassed a long while on your patience, by pointing out what occurs to me as a radical distinction between copy and patent rights. And in so doing, I may perhaps say that I believe myself to be quit, in so far as I may be an author, of any profound belief that the compositions of my pen, will possess any saleable merit; and that, therefore, if I seem to defend the rights of authors, I do so with none of that animus which I have ventured to suggest is a leading principle with inventors.

There are, at least, two characteristic forms of copyright. The one is in books, by which I mean generally, literary compositions, the other is in patterns. With respect to the former of these, it is manifest that they partake far more of the nature of property than inventions do, from the fact that they are capable of distinct appropriation and limitation. There is nothing, as I have said before, to hinder any two persons from making simultaneously the same discovery of the same process; as a matter of fact, it is, I believe, the case that nearly all the most important discoveries in mechanical and cognate processes, have been made simultaneously. That the same circumstance is not known to have happened in all cases, is due, I imagine, quite as much to the legal position of the first appropriator, as to any special gift or power which the appropriator in question has possessed. A second person makes as *bonâ fide* a discovery as

the first, but finds that the privilege of production has been anticipated, and therefore has no opportunity of publishing the fact of his invention.

But the case is far different with literary compositions. No two persons could have, independently of each other, written the same book. No law could give any author a privilege over materials and methods. What it does allow is, that having used the materials of thought and association, a particular person should have a special property in the result, and a privilege of reproducing copies of that result. And it is, I conclude, because it is a moral impossibility that any two persons should have several and joint ownership in the same words, thoughts, expressions, or could contend with each other as to who it was that first composed a particular volume, that the law of copyright stands on a far surer basis of natural right, than the law which protects inventors. A book fulfils the conditions of property, an invention does not. The property in a book is a property in a product, in a mechanical or similar invention in a process.

No one could be aggrieved or anticipated by the fact that Mr. Dickens wrote the "Pickwick Papers," or Mr. Tennyson the "Idylls of the King," or Mr. Mill the "Elements of Political Economy." Indeed the first named author furnishes an apt illustration of the difference between a process and a product. One element of the success of the "Pickwick Papers," however small an element of success it may have been, was the issue of the novel in successive numbers. This in a mechanical invention might have been patented, in a literary production could not be. Of course Mr. Dickens was imitated, or in the language of patentees, his process was pirated, and the serial system, as applied to works, became a common method of publication.

It may be, moreover, in the public interest that a sole privilege of publishing certain works should, under certain conditions, be granted to certain parties. But they should represent opposing interests, and therefore the principle of competition; they should not be compelled to pay office fees for their privilege of sale, and not thereupon be obliged to load the purchaser with the interest of capital expended in such a fashion; and they should, being responsible by their position and credit, be likely to reproduce correct as well as cheap copies of the works in which they have a privilege. This is, I believe, the economical defence of the privilege of printing Bibles, possessed by the Universities and Queen's printers.

Again, it is I believe, in the interest of the public that a different protection should be accorded to works of art and belles lettres, than ought to be granted to mechanical processes. The latter are solely relative, or almost always relative to material utilities. In such cases



the correspondence of supply and demand is generally immediate. Nay, the invention itself is ordinarily subsequent to a pressing demand for the convenience or utility afforded. But literary compositions generally are, and almost always affect to be, part of the process of national education. In the education of a people, the supply of material long precedes the demand for the thing. And yet the most valuable forms of literature are seldom, even under the protection of copyright, a source of much gain to authors, those works I mean which are of a solid and enduring kind; while the most lucrative kinds of composition, as one is informed, those which appear in serials, rarely need, from their perishable and temporary character, any protection at all. If, however, it could be shown that the protection of copyright is any stimulus to education by books, the advantage gained by the public in their composition, is a fair set off against the sole right of sale by the inventor; that right of sale being limited to the impression of a particular form of words, not being hampered by any ambiguity, and not being, except in very rare cases, a possible material for litigation.

The same reasoning, though with far less force, applies to copyright in patterns. It is not likely that two persons should invent the same pattern. It is doubtful whether any serious injury could be done to the draughtsman and the purchaser of his design, by its being copied. At any rate, that which I have heard many patentees allege, that priority in the market,—which any man may procure,—is a far more important element of success than priority of privilege in sale, applies with greater force to the invention of designs than to that of patented processes. Besides, the principle of the protection of patterns is very clearly allied to that of the protection accorded to trademarks. I fully admit that the copying of a trademark with a view which such a copy would generally have, is an offence of the same nature with forgery, and is not very far removed in point of turpitude, from the worst forms of that offence, is as serious an inconvenience to the public, and should be checked by stringent penalties.

The strongest case which can be, I believe, made out for protection to a quasi literary property, is that alleged in favour of engravers as against photographic copies of their originals. One may indeed doubt whether a photographic copy can ever be so exact as to deceive the eyes of such moderately practised persons as are purchasers of engravings. But if as is avowed, the free power of copying engravings in this manner would annihilate the art of engraving, and with it of course the power of making photographs of such works of art as are represented in engravings, a very reasonable plea for protection is set up, on the ground of the public interest. If the value of the engraving, however, consists in the

mere quality of rarity, it is a mere pabulum to contemptible vanity.

In conclusion, I have only to excuse myself for occupying so much of the Society's time in stating what are after all to most of you, I doubt not, very debatable positions. I called attention to the subject at the meeting of the British Association, at Manchester, in the year 1861, chiefly because I thought that a number of resolutions in favour of patents had been carried in an objectionable manner at a meeting of the Mechanical Section of that Society, that is, before parties who are *prima facie* interested in the maintenance, and even the extension, of the present system. From a report issued by the Inventors' Institution, which has been forwarded me since this paper was written, I see that the condition of patentees is to outward appearance, at least, vastly like that which has been recognised from time to time as characteristic of most protected interests, that of chronic lamentation; to the effect that existing guarantees are insufficient or delusive, and that larger measures of protection, easier processes of appropriation are necessary for the due development of patent rights. I see, too, that the authors of this report assume that literary works and inventive adaptations are identical in their nature, with singular simplicity assert a parallel between the copyright of a stupid book and the petrification of a mechanical process, and seem to hold that the patentee "stamps his thoughts on matter," whereas the more natural metaphor is that of planting his hoof upon mind.

The time is, I believe, long past in which the assertions of a privilege, however inveterate and traditional it may have become, are sufficient to establish a right. Without affecting to reconstruct society, thinkers in all branches of human knowledge, are more and more bent on investigating the principles on which social practices are founded. A long and large induction from the facts of history, and a corresponding experience in the working of political and economical causes, but lately accepted, have taught people how fully a wide observation becomes the refutation of a narrow one. One by one the cherished methods of our forefathers, after ages of loss, vexation, and disappointment, have been abandoned for the broad principles of spontaneous action and public utility. Those among us who were spectators or combatants in those economical battles which have characterised our civil history during the last forty years, know how grave and solemn were the appeals to tradition, and custom, and right; how gloomy were the prophecies of impending ruin; how coarse were the accusations of self interest and dishonesty, which even good men, the maintainers of the ancient system, uttered against the sagacious advocates of change. All men now allow the benefits of these fundamental alterations. Not indeed that the work of economical reform is ended, it is hardly more than begun. The



economist will probably, for a long time hence, be constrained to do battle against that protective instinct, which has been so long the enemy of mankind, and which seems, as successive enlightenment and broader experience narrows its powers of mischief, to get more cunning and plausible in defence of the fragments of its prerogative.

[The average number of patents taken out for ten years, 1838-47, in the United Kingdom, was 680 annually; of that number 450 were English, 157 Scotch, and 73 Irish patents. During the decade a marked increase in the number passed is noticeable. Comparing the first and the last year, the figures stand thus,—England, 407—498;\* Scotland, 133—168; Ireland 64—76. What was the cost of obtaining a patent before the amendment of the Patent Law took place, it is not now easy to learn; but all that is officially known of the fees then payable is given in Table I (Appendix). The present scale of charges is set out in Table II (Appendix). Some further statistics of patents are shown by the next statement in the Appendix (Table III). There, under the head of “Applications for Provisional Protection,” the same tendency to increase is observable. The number returned against 1858 is excessive, from the cause stated on the table. In 1854, the numbers were 2,764, and in 1861, they rose to 3,276. But much greater equality is seen in the number of patents actually passed during those years. A petition for provisional protection costs 5*l.*; but upwards of 1,000 inventors, real or imaginary, annually take this preliminary step and proceed no further. This sanguine portion of the population thus throw away 5,000*l.* a-year upon their schemes. Of every *three* inventors who propose to themselves the protection of a patent, only *two* obtain it. The uniformity of this ratio, since 1854, considering how small are the numbers, is remarkable.—ED., S. J.]

\* House of Commons Paper, No. 23, Patents for Inventions, Sess. 1849.

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## APPENDIX.

TABLE I.—*Statement of the Number of PATENTS GRANTED, under the Old Patent Laws, in the UNITED KINGDOM, during the Years 1845-6-7; and of the FEES received by each Public Officer in respect of the same.*

[illegible]

\* The fees payable on all patents passing through the Attorney and Solicitor-General's Offices are 4*l.* 4*s.* for the report, and 5*l.* for signing the Bill; the particulars as to the amount received in the required period cannot be furnished.

† The number of patents which pass the Privy Seal may vary from the number which have passed the Great Seal; instruments sometimes not being completed.

‡ In addition to the fees payable on patents in Ireland, the sum of 14*l.* 8*s.* 6*d.* is payable to the English officers on each patent, viz., to the Home Office, and for stamp 9*l.* 3*s.* 6*d.*; to the Irish Office, 2*l.* 2*s.*, and to the Clerks of the Signet, 3*l.* 3*s.*

§ No account of the amount of fees received on patents is given in the Return, but the fees payable are stated to be:—1. At the Chancery Office, 25*l.* *—s.* 7½*d.*, whereof, prior to 31st September, 1847, 21*l.* 19*s.* 8½*d.* was paid into Her Majesty's Treasury, and 3*l.* *—s.* 11*d.* to the officers in Chancery; and subsequent to 31st September, 1847, 24*l.* 8*s.* 7½*d.* to the Treasury, and 12*s.* to the officers in Chancery. 2. At the office of the Great Seal, 14*l.* 19*s.* 5½*d.*; of which 14*l.* 12*s.* 9½*d.* is paid into the Treasury, and 6*s.* 8*d.* for box and wax. 3. At the Lord Advocate's Office, 4*l.* 4*s.*; 3*l.* 3*s.* to the Lord Advocate, and 1*l.* 1*s.* to his Secretary.

*Note.*—Abstracted from House of Commons Paper, No. 457, Letters Patent. Sess. 1847-8.



TABLE II.—*Statement of all FEES and STAMP DUTIES in lieu of Fees paid in the UNITED KINGDOM, for passing Patents of Invention under the Patent Law Amendment Act of 1852 (15 and 16 Vict., cap. 83), and under the Act to substitute Stamps for Fees (16 and 17 Vict., cap. 5), from the 1st October, 1852, to 31st December, 1853.*

Number.	Designation of Process.	Cost of Each.	Total Cost to the Patentees.
		£ s. d.	£
4,256	Petitions for grants of letters patents ....	5 — —	21,280
2,927	{ Notices of intention to proceed with } application .....	5 — —	14,635
190	Notices of objection to grant.....	2 — —	380
2,420	Warrants for patents .....	5 — —	12,100
2,384	Patents sealed .....	5 — —	11,920
2,136	Specifications filed .....	5 — —	10,680
273	{ Entries of assignments of patents and } licences .....	— 5 —	68
1,500	Searches and inspections .....	— 1 —	75
128	{ Extension* of English patents to Ire- } land .....	6 13 4	853
126	{ Extension* of English patents to Scot- } land .....	6 13 4	840
5	{ Irish and Scotch patents extended* to } England .....	6 13 4	33
5,625	Folios of office copies.....	— — 2	47
	Total .....	—	72,911

\* The 53rd section of the Act applied only to such patents as had passed under the old law, and on which the specification had not been enrolled. The old law allowed six months from the date of the patent for the enrolment of the specification, therefore no extended patents have been passed since the 31st March, 1853.

*Note.*—Abstracted from the First Report of the Commissioners of Patents.

TABLE III.—*Statement of the Number of Applications for PROVISIONAL PROTECTION of Patents, and of the Number of PATENTS PASSED ; of the Number of SPECIFICATIONS FILED ; and of the Number of Applications LAPSED or FORFEITED in the UNITED KINGDOM during Nine Years ; together with the Amount of Stamp Duties Paid on Patents.*

Year.	Applications for Provisional Protection.	Number of Patents Passed.	Number of Specifications Filed.	Applications Lapsed or Forfeited.*	Amount of Stamp Duties Paid on Passing Patents.
					£
1853†.....	4,256	3,099	2,136	1,157	72,911
'54 .....	2,764	1,876	1,828	888	53,030
'55 .....	2,958	2,044	1,989	914	73,582
'56 .....	3,106	2,094	2,048	1,012	91,116
'57 .....	3,200	2,028	1,976	1,172	83,887
'58 .....	3,007	1,954	1,880	1,047	83,582
'59 .....	3,000	1,976	1,897	1,024	95,122
'60 .....	3,196	2,061	1,965	1,135	108,133
'61 .....	3,276	2,047	2,015	1,229	99,979
Total .....	28,763	19,179	17,734	9,578	761,342

\* The applicants having neglected to proceed for their patents within six months of provisional protection.

† For the fifteen months ended with December, 1853, the business under the old Patent Acts was suspended for some time, till the opening of the new office on the 1st October, 1852 ; this caused an extra number of applications to be made in the first year.

*Note.*—Abstracted from the Annual Reports of the Commissioners of Patents for Inventions, made pursuant to the Act 15 and 16 Vict., cap. 83.



*The TARIFFS and TRADE of VARIOUS COUNTRIES during the last  
TEN YEARS. By RICHARD VALPY, ESQ., of the Statistical  
Department, Board of Trade.*

[Read before Section (F) of the British Association, at Cambridge, in October,  
1862.]

UPON the occasion of another International Exhibition, the chief object of which is to stimulate industry and increase commerce, it will be interesting to examine, shortly, the course of commercial policy in different countries, and the effect upon international trade during the period from 1851 to 1862. England has the first claim to our notice, both on account of the advance it has made in liberating commerce, and the superior magnitude of its foreign trade.

Although great modifications were made in the English tariff, in the ten years from 1841 to 1851, very considerable remissions and reductions of duty have been effected during the ten years ended with 1862; and two of the greatest commercial reforms, the repeal of corn laws and the abolition of the navigation laws, although adopted shortly before 1851, have influenced very considerably the commerce and condition of the country in the period under consideration. Less importance is generally attached to the opening of our trade to foreign vessels, than to the repeal or reduction of a duty upon some important article of consumption. But an unrestricted command of tonnage is an essential element of an extensive foreign trade, and the abundant and cheap supply of the national markets is greatly dependent upon free navigation.

The practical benefits resulting from the abolition of the navigation laws, are well stated in one of the reports from the Commissioners of Her Majesty's Customs. After mentioning the trouble incurred in preventing the violation or evasion of the restrictions upon navigation, and the inconvenience and loss of time they occasioned to merchants, the Commissioners observe "the whole of these  
"vexatious and complicated restrictions are at length happily  
"abolished, and it is difficult to say whether the expansion of trade,  
"the interests of shipowners, or the comforts of customs' officers  
"have been most effectually promoted by the change." The navigation laws have now been abolished for fully ten years, and in that period the British mercantile marine has been largely increased, and shows a continued advance in the tonnage employed. In 1851, the tonnage of vessels which belonged to the United Kingdom, and

were actually employed in the coasting and foreign trades was 3,360,935 tons; and in 1861 it amounted to 4,359,695. The total amount of British tonnage entered and cleared at ports in the United Kingdom, with cargoes only, from and to foreign countries, was 8,535,252 tons in 1851, and 13,149,545 tons in 1861. The foreign tonnage shows a considerable increase between 1851 and 1861, and the necessity of it is apparent when we find that our imports and exports required 13,471,377 tons of shipping in 1851, and 21,924,983 tons in 1861.

The repeal of the corn laws is undoubtedly the most important of all our tariff alterations. Whether in its direct operation in augmenting the supply of the chief article of food, or in its indirect effect upon the extension of manufactures and trade, no change of duty can bear comparison with it. The large importation of wheat and flour in every year since the repeal of the sliding scale of duties, is a proof that the demand is not altogether dependent upon the supply of home-grown corn, which is well known to have been much increased of late years. The variations in the quantity grown at home, affects the demand for foreign corn; but it is, nevertheless, a question whether the consumption of foreign corn does not, as a rule, depend more upon the power of the people to purchase, rather than upon the fluctuation in the yield of home-grown corn. Large supplies of foreign corn are sometimes looked upon as a drain upon our resources, but they are frequently an evidence of the soundness and largeness of the means of the people. Large importations of foreign corn are generally coincident with large exports of British productions.

The very considerable increase in the consumption of foreign wheat and flour since the repeal of the corn laws, and the very large annual value of that comparatively new article of foreign supply, are important proofs of the increased prosperity of the country. From 1831 to 1840, the average annual consumption of foreign wheat and flour was 900,000 quarters, and the value, at the average price of British wheat, was 2,520,000*l*. From 1841 to 1850, the average consumption was 2,600,000 quarters, and the value 6,890,000*l*. From 1851 to 1860, 5,000,000 quarters were consumed of the value of 13,500,000*l*. The real value of imports was not ascertained at the Custom House before 1854. In the eight years from 1854 to 1861, the total real value of foreign wheat and flour retained for consumption in the United Kingdom amounted to 122,000,000*l*., or about 15 $\frac{1}{4}$  millions upon an annual average.

The alterations effected in the British tariff since 1851, have been chiefly the removal or reduction of duties upon other important articles of food.

In 1851, the duties upon coffee, sugar, and timber were lowered,



involving an estimated reduction of revenue to the extent of 800,000*l*. In 1853, customs' duties were reduced, and one million and a-half of revenue given up; nearly one million upon tea, and half a million upon butter and cheese, sugar, raisins, and other articles. In 1854, the duty upon tea was again diminished, and nearly another million of revenue abandoned. But the alteration of the sugar duties in the same year, were calculated to produce an additional revenue of 420,000*l*. The Russian war necessitated a different policy in the next year 1855, when the tea, sugar, and coffee duties were raised to obtain an estimated additional revenue of two millions and a-quarter. These increased duties were lowered in 1857, entailing a diminution of revenue to the extent of 1,600,000*l*. In 1860, the modifications of customs' duties were very considerable, more so, as regards the number of articles dealt with, than in any previous year. The estimated loss of revenue, by the repeal and reduction of customs' duties in 1860, was 2,840,931*l*.; an amount only surpassed since 1840, in 1842, when 3,617,306*l*. of revenue were given up, but of that sum the reduction upon sugar alone amounted to 2,309,857*l*. In 1861, the duties upon wine were further reduced, causing, with some other unimportant changes, a loss to the revenue of 279,558*l*. To such an extent have articles of import been relieved of customs' duty in England, that in the British tariff free goods are now the rule, and those subject to duty the exception. In 1841, as many as 1,052 articles, and their subdivisions, were subject to duty, and, in 1853, duties were levied upon 466 articles. But at the present time only 137 articles, and their subdivisions, are charged with duty upon importation into the United Kingdom.

In the eleven years, from 1851 to 1861, after deducting the additions, chiefly on account of war, customs' duties have been repealed or reduced, estimated to lower the revenue by very nearly five millions. The actual result to the revenue was, however, very different, as the total net amount produced by the customs' duties was 20,615,000*l*. in 1851, and 22,765,338*l*. in 1861. There was, therefore, a positive gain to the revenue of two millions, and a recovery of customs' revenue, after deducting the estimated loss from reductions, of rather more than seven millions, or 46 per cent. Of course these results were not solely occasioned by the tariff reforms, but the consuming power of the country was largely augmented both directly and indirectly by the increased freedom of trade.

Upon the four articles, sugar, tea, tobacco, and foreign and colonial spirits, the net amount of duty received in 1861, was no less than 19,849,000*l*. against 16,857,000*l*. in 1851, and 15,048,000*l*. in 1841. The increase in 1861 was about three millions over 1851, and nearly five millions over 1841. The increase in 1851 over 1841, was rather less than two millions. Only three of the four articles, how-

ever, yielded a larger revenue in 1861 as compared with 1851, as tea, under a reduced duty, was not quite so productive. In 1861, these four articles produced 84 per cent. of the total amount received from customs' duties; sugar contributing 26 per cent., tea 23 per cent., tobacco 24 per cent., and foreign and colonial spirits 11 per cent. The revenue from sugar has largely increased since the great reductions of duty effected previously to 1851.

The consumption of sugar, tea, and tobacco, which had increased considerably between 1841 and 1851, was upon a still larger scale between 1851 and 1861. In 1861, 9,181,000 cwt. of sugar, unrefined and refined, were consumed against 6,572,000 cwt. in 1851, and 4,058,000 cwt. in 1841. The average consumption per individual of the population amounted to  $35\frac{1}{4}$  lbs. in 1861,  $26\frac{3}{4}$  lbs. in 1851, and 17 lbs. in 1841. The quantity of tea retained for home consumption was 77,927,000 lbs. in 1861, 53,949,000 lbs. in 1851, and 36,675,000 lbs. in 1841, giving an average per individual of 2.67 lbs. in 1861, 1.96 lb. in 1851, and 1.37 lb. in 1841. Whilst tea has been used in much larger quantities, the consumption of coffee has only kept pace with the increase of the population. 1.18 lb. was consumed per head in 1851, and 1.21 lb. in 1861. The average consumption is now rather below that of tea in 1841, and, in round numbers, is about one-half the average consumption of tea. The consumption of tobacco amounted to 34,828,000 lbs. 1861, 27,915,000 lbs. in 1851, and 22,085,000 lbs. in 1841, which gives per individual 1.19 lb. in 1861, 1.01 lb. in 1851, and 0.83 lb. in 1841. As tobacco is not so generally used as sugar and tea, the average consumption by the smoking portion of the population must be much in excess of the average for the whole population. The reduction of duty upon foreign and colonial spirits is too recent to have influenced the consumption to any extent; 4,766,000 gallons were retained for consumption in 1851, and 5,151,000 in 1861, being about one-fifth and one-fourth the quantity of home-made spirits consumed in the respective years. To show still further the great increase in the consuming power of the population, it may be stated that the aggregate value of the chief imported articles of food (including wheat and flour, sugar, tea, coffee, spirits, butter, cheese, rice, and eggs), together with tobacco, was 36,923,000*l.* in 1854, and 53,292,000*l.* in 1861, showing an increase in eight years of 16,369,000*l.* or 44 per cent. The average expenditure for these articles, per head of the population of the United Kingdom, was 16*s.* in 1854, and 37*s.* in 1861.

As regards the aggregate trade of the United Kingdom, between 1851 and 1860, very favourable results are exhibited, in comparison with the preceding period, from 1841 to 1850. The average annual value of imports, at the old official fixed rates, an indication of quantity rather than of value, was 82,741,000*l.* from 1841 to 1850,



and 130,134,000*l.* from 1851 to 1860. The percentage increase in the period from 1841 to 1850, over the preceding ten years, was 53 per cent., and from 1851 to 1860 over 1841 to 1850, it was 57 per cent. The real value of the total imports, when first ascertained in 1854, was 152,389,000*l.*, and in 1861, it was 217,351,000*l.*, showing a percentage increase in the eight years of 43 per cent.

A comparison of the total declared real value of British produce exported, exhibits still more favourable results. The average annual value of the exports, between 1841 and 1850, was 57,443,000*l.*, and 106,513,000*l.* between 1851 and 1860. In the period from 1841 to 1850, as compared with the preceding ten years, the increase of British exports was 12,206,000*l.*, or 27 per cent.; and from 1851 to 1860, the increase, upon 1841 to 1850, was as much as 49,070,000*l.*, or 85 per cent., which is more than three times as great a rate of increase as in the preceding decennial period. This is an important fact, and it may be urged as strong evidence in support of the principle that the exports of a country cannot be increased to any considerable extent, if the imports are restricted by high rates of duty. The commercial policy pursued in England, of increasing imports by repealing and reducing customs' duties, has certainly been followed by a surprising extension in the exports of British productions.

The modifications effected in the tariffs of foreign countries, can only be indicated so far as they are enumerated in the returns relating to foreign tariffs published by the Board of Trade. It is not probable that notices of any important changes have failed to reach that department. But only a cursory glance at the commercial policy of foreign countries can be attempted within the limits of the present paper.

Grouping the countries of Europe, according to the nature of the alterations effected in their tariffs within the period, as nearly as can be stated, from 1851 to 1861, it appears that the duties levied upon imports have been considerably modified in France, Sweden, Russia, Italy, Holland, Austria, and Portugal.

The modifications are for the most part, however, of comparatively recent date, and the protective principle has still been maintained; the policy being, in almost all cases, to lower the duties upon raw materials and articles manufactured to a small extent in the countries themselves, but to afford to the leading national industries a considerable amount of protection against foreign competition.

Upon the modifications of the Portuguese tariff in 1860, Her Majesty's Secretary of Legation at Lisbon reports, "that they embrace a large number of raw materials, some manufactured articles which are not produced in the country, and many others which are manufactured in Portugal. In dealing with the latter,

“ great caution is of course exhibited from regard for the large  
“ capital invested in the manufactories which were artificially called  
“ into life by the protective tariff of 1837, in defiance of all sound  
“ economical principles.”

A few reductions have been made in the tariffs of Norway, Denmark, and Spain, with an increase of some duties, however, in Spain. The general tariff of the Zollverein appears to have been without any changes of consequence during the last ten years. But for a considerable portion of that period a special treaty has existed with Austria, by which the Zollverein duties are largely abated in favour of Austrian produce. The new commercial treaty between Prussia and France would, if adopted by the States of the Zollverein generally, afford ground for hope that France and other countries would be admitted to share the advantages accorded to Austria. The Prussian Minister President is reported to have stated at the recent opening of the Diet, “ that the progress of national economy and  
“ science required that the tariff of the Zollverein should be modified  
“ in the full sense of free trade, and that the apprehensions aroused  
“ at the prospect of such a modification, were already beginning to  
“ yield to a more correct appreciation of the advantages offered by  
“ a more extended market.” But few countries of Europe have actually raised their import duties; Belgium appears to have made some alterations in her tariff in this direction about ten years since, but she has recently made a treaty with France for reciprocal reductions of duty; and after a rather protracted negotiation, she has accorded nearly the same modifications to the productions of the United Kingdom.

The chief opposition to the admission of English goods at the same rates of duty as French goods, appears to have emanated from the cotton interest at Ghent, which now enjoys protective duties. The effect of this protection, according to an article in the “*Economiste Belge*,” has been to check the development of the cotton industry. And it is stated, that, while in Switzerland, the cotton manufacture, under a system of free trade, advanced from 300,000 to 1,200,000 spindles, between 1830 and 1855, in Belgium its progress, in the same interval, was only from 300,000 to 400,000 spindles. The Secretary, to the Verviers Chamber of Commerce, reminded a recent public meeting at Brussels, of the protectionist agitation at Verviers against the French treaty of 1845, and contrasted the annihilation then predicted, with the actual fourfold increase in the production of woollen yarn.

Although France, Sweden, Russia, Italy, Holland and Austria have been named as the countries of Europe which have effected the largest reductions in their tariff duties, it is to be observed that the rates of duty vary greatly in these countries, and but few of



them can even now be considered as having really liberal tariffs. But when it is remembered how many articles were formerly prohibited from importation, the alterations in the tariffs of these countries must be regarded as important steps towards the extension of international trade.

There is one feature in the tariffs of France and Russia deserving of remark—the exemption from duty of some raw materials when imported for the purposes of manufacture for exportation. If the home manufacturers with their raw material, free of duty, can successfully compete in foreign markets, they ought surely to be able to do the same in the home markets; and it is hard upon the home consumers that they are not permitted to obtain supplies at as cheap a rate as the home manufacturers can sell in foreign markets.

With respect to changes in the tariffs of countries out of Europe, those effected in the tariff of the United States deserve the first notice. Unfortunately all the good that was in them is now a thing of the past. Although, previously to 1857, duties were not high enough to be prohibitive to trade, yet by the new tariff adopted in that year, very general and considerable reductions of duty were made. The tariff of 1857 continued in force until the beginning of 1861, when very heavily increased duties were imposed by the Morill tariff. Since the outbreak of the civil war, many of the duties have been still further augmented by the Federal Government.

Of the countries in South America, only Brazil and Chili appear to have liberalized their tariffs. New Granada, Venezuela, the Argentine Confederation, Buenos Ayres, and Peru, have more or less increased their rates of duties. Last, but not least, the reduced rates of duty adopted in China by the Commercial Treaty of June, 1858, deserve to be mentioned, as an increase of trade may be the result, if the country be not seriously disturbed by the progress of the rebellion.

It is not easy to show the effect produced upon the customs' revenue of foreign countries, by the reduction of import duties. Generally speaking, the duties have not been lowered sufficiently to encourage a large increase in the consumption of imports. And in particular instances, such as France, the alterations are too recent, and the subsequent state of trade too unfavourable for a rapid recovery in the customs' receipts. It appears, however, from a recent report by Mr. Grey, Her Majesty's Secretary of Embassy, at Paris, that the actual loss upon the customs' revenue of France, is not greater than was expected. The French Government had estimated the deficit, consequent upon the alterations in the tariff, at 60 million francs at the least; and was prepared to submit to a loss of 80 million francs. But the diminution in 1861, compared with 1859, was not

greater than 63 million francs. A report by Mr. Corbett, Her Majesty's Secretary of Legation, at Stockholm, furnishes evidence of the financial success of a free trade policy in Sweden. The receipts from customs' duties are stated to have been nearly doubled since the reduction of duties by successive tariffs. Manufactures, it is also said, have at the same time greatly increased.

The foreign commerce of the principal countries of Europe has largely increased since 1850, much more so than could have been expected from the general character of the tariffs in force in many of those countries. But other well known causes have arisen to stimulate trade, not the least of which has certainly been the much larger demand for foreign produce in the English markets, in consequence of the repeal and reduction of our import duties. The increase in the import trade of the continental countries, has been chiefly in articles required for manufacturing industries, and admitted either free of duty or at moderate rates. The advance in articles which indicate the consuming power of the people has not been nearly so great.

Comparing the total value of merchandize imported into and exported from the principal countries of Europe in 1851 and 1859 or 1860, according as the particulars can be ascertained, it appears that the imports of Russia have increased from 13,783,000*l.* to 21,838,000*l.*, and the exports from 13,311,000*l.* to 24,172,000*l.* The imports of Sweden rose from 2,291,000*l.* to 4,108,000*l.*, and the exports from 2,232,000*l.* to 4,138,000*l.* Denmark's imports advanced from 5,264,000*l.* to 6,675,000*l.*, and her exports from 3,870,000*l.* to 4,469,000*l.* For Hamburg only the value of the imports is stated for the two periods; it was 24,708,000*l.* in 1851, and 35,360,000*l.* in 1861. Bremen received imports to the value of 6,257,000*l.* in 1851, and 11,913,000*l.* in 1861. The exports amounted to 5,478,000*l.* and 11,676,000*l.* The imports of Holland increased from 23,541,000*l.* to 32,134,000*l.*; and the exports from 19,794,000*l.* to 28,411,000*l.* Belgium exhibits an advance of from 16,742,000*l.* to 36,972,000*l.* for imports, and from 16,047,000*l.* to 35,182,000*l.* for exports. France, whose foreign trade is next in importance to that of the United Kingdom, increased her imports from 46,309,000*l.* to 106,280,000*l.*, and her exports from 65,186,000*l.* to 125,920,000*l.* For Portugal no more recent returns than for the year 1856 are available; they show an increase of both imports and exports as compared with 1851, and a much greater improvement will doubtless be shown under the operation of the tariff of 1860. The trade of Spain has grown considerably; the imports were of the value of 6,751,000*l.* in 1851, and 14,439,000*l.* in 1861. The exports were of the value of 4,907,000*l.* and 10,654,000*l.* Austria has increased her foreign trade, but not to the same extent as some of the countries already



mentioned. Her imports amounted to 14,834,000*l.* in 1851, and to 21,178,000*l.* in 1859. Her exports to 13,002,000*l.* in 1851, and to 21,752,000*l.* in 1859. For Prussia and the other countries comprised in the Zollverein, no value of imports and exports is recorded. The amount of the trade of the countries now constituting the kingdom of Italy, cannot be stated for want of information, but judging from the recent increase of trade between Italy and the United Kingdom, Italian commerce is doubtless of an extent second to but few countries of Europe. It is important to notice that the value of imports and exports just stated, generally includes foreign merchandise in transit, which adds considerably to the amount of the trade of Holland, Belgium, and France. The improvement in the trade of many countries in Europe between 1851 and 1860, as compared with the corresponding period from 1841 to 1850, is very marked. In France the value of the imports for home consumption was actually lower in 1851 than in 1841; whereas in 1860 it was 143 per cent. higher than in 1851. The value of the exports of French produce was 63 per cent. higher in 1851 than in 1841, and 84 per cent. higher in 1860 than in 1851. In Belgium the imports for home consumption in 1851 were but very little higher in value than in 1841, whereas in 1860 they were 138 per cent. higher than in 1851. And as regards Belgian produce, the value exported was but 30 per cent. more in 1851 than in 1841, but in 1860 it was 135 per cent. more than in 1851. In none of the principal countries of Europe do the imports exceed the exports in value to the same extent as in England. In France and Russia the exports exceed the imports. In Belgium there is but little difference between the imports and exports. In Holland and Spain the imports are in excess.

It is curious to observe for how small a proportion of the national productions, the burden of protective duties is imposed in many foreign countries upon the whole body of consumers. Judging by the percentage proportion of yarns, textile fabrics, and iron to the total exports of domestic produce, the importance of such productions, in a national point of view, is comparatively small even in France and Belgium. Whilst in the United Kingdom yarns, textile fabrics, and iron constitute about 70 per cent. of the domestic exports, they amount to but 37 per cent. in France; and omitting silks, which are no longer protected in that country by import duties upon the like fabrics from foreign countries, the percentage would be only 17 per cent. In Belgium the percentage proportion of yarns and textile fabrics of all kinds and iron, to the total exports of domestic produce, is not more than 30 per cent.

A review of the commercial policy and trade of the last ten years, shows that much progress has been made during the period,

and there are good grounds to expect greater progress in subsequent years. But it is vain to expect that commerce can be one-sided, or in other words, that there can be large exports without corresponding imports. The progressive wealth of a country is often supposed to depend upon progressive exports. To foster national productions for the supply of both home and foreign markets, has been the great aim of statesmen in many countries, and is still, unfortunately, so in some countries. The commercial policy has been to send any and everything abroad, but to receive nothing in return that can be produced at home, however indifferently, or at whatever cost. How can exports increase if such a policy prevails with regard to imports? If countries are to be generally adverse to receiving foreign imports, where are markets to be found for exports? It is astonishing that a whole population, as consumers, receives little or no consideration in comparison with the small classes of producers. Without open markets the consumers are of course at the mercy of the producers, and the latter prefer high prices and a limited consumption to low prices and a large demand. But what chance have the poorer, but great class of consumers, under high prices? They must be always on the verge of pauperism, and with what result to the country? There can be no extensive and growing industries without large bodies of consumers, and it is upon the means of the consuming classes that the commercial and financial prosperity of a country depends. It may be said that production, or, in other words, employment must precede consumption. Undoubtedly, but it is the development of the natural and not the artificial productions that is essential to the increase of national wealth. Enable the large masses, engaged in occupations the most suitable to a country's capabilities, to produce at the smallest cost, and to obtain, whether for private consumption or for reproduction, the cheapest supplies, irrespective of the consideration whether they are produced at home or abroad, and there will be no lack of means to extend domestic and foreign trade, and to meet the requirements of the state.

If reasonable facilities are only given to commerce, its future extension in all countries must be very great. How comparatively small a number of the world's population can, as yet, be reckoned as average consumers of the commonest necessities of life. An anti-commercial policy, imperfect means of communication, and generally low rates of wages have, in almost all countries, restricted the power of consumption of the people to the most moderate scale. Each of these serious obstructions to the welfare and progress of nations is happily disappearing. Restriction of trade and difficulty of transport, conduce to a state of isolation which is inconsistent with the due advancement of national power and influence. The improvements in means of communication are contributing to a great increase in the



productiveness of countries, and are affording extraordinary facilities for the extension of international trade. But how comparatively useless would be the great lines of railway connecting state with state, and traversing Europe from end to end; and the rapid intercourse by steamers upon every sea, if the interchange of merchandize continued to be paralyzed by the exaction of exorbitant duties? Modern enterprise necessitates, however, a wiser and more liberal policy.

It is not only by affording such improved means of communication that railways are contributing to an extension of trade, but their construction has been one of the great causes of the rise in the value of labour. Wages in almost all occupations have been advanced, directly or indirectly, by the large amount of well paid employment afforded by railways. In India the effect upon the general rate of wages, and the consequent increase in the people's power of consumption have been very remarkable. The advance of wages in all countries cannot but give an immense impulse to trade, if consumers are permitted to enjoy all the advantages of cheapness that improved means of communication and freedom of trade can confer.

Of late years the commercial policy of England, as a general rule, has been based simply upon the interests of her own people, and without having recourse to commercial treaties. This is no doubt the best principle, but, as there are admitted exceptions to all rules, if the Governments of foreign countries prefer, or are obliged, to proceed upon a different system, we must hope that they will, at all events, make good progress towards greater freedom of trade. England, having relaxed her tariff for the produce of all countries, is supposed to be in an unfavourable position as regards countries which do not grant to English produce the same advantages as to the produce of some other countries. But true principles of policy will prevail in the end, and public opinion will overcome the obstacles raised by special interests.

Although corresponding reductions of duty cannot now be offered by our Government, our commercial interests may be greatly aided by the special distinctions of many British productions being pointed out to foreign Governments, and representations being made in order to secure for imports from this country, the most favourable treatment consistent with the spirit and provisions of the tariffs of the respective countries.

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RECENT FINANCIAL *and* TAXATION STATISTICS *of the* UNITED STATES. *By* CORNELIUS WALFORD, *Barrister-at-Law, and Member of the Council of the Statistical Society.*

[Read before the Statistical Society, 17th March, 1863.]

PART THE FIRST.

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FOR eighty years the progress of the United States has resembled the course of a mighty river. Taking its rise from sources now almost overlooked in the grandeur of its later proportions, it has gone on gaining breadth, depth, and power until those who have dwelt upon its borders have come to believe, as well they might, that its force was irresistible, and the current of its progress could never be either stemmed or seriously diverted.

American finance has resembled a barque upon this same stream ; it has sailed, at first gently, but after a time more gaily, with the current ; and so safe and certain seemed its progress that compass and chart were thrown aside—the pilot or helmsman had discarded all thoughts of danger—and the vessel was fairly left to navigate its own course.

A sudden disruption occurs. The stream is divided into two courses, and even a third seems threatening ; rocks and breakers (or more appropriately “snags” and “sawyers”) are ahead, and the once quiet barque of finance seems destined, if not to entire wreck, at least to such extensive derangement as to require complete overhauling and reconstruction ; and lo ! in place of its once light draught and pleasure-going aspect, it has become transformed into a dark and dangerous craft, bristling with an armament of enormous calibre, and, it is whispered, not unlikely to wage offensive warfare even against a sister vessel—I mean the vessel of State.

Well, I propose to take you for a little cruise upon this stream. We need not travel back to its source. It will be sufficient for our present purposes, to take it at the point where its original thirteen



tributaries combined, and so gave it an independent national character.

The War of Independence terminated in 1783,—and it is the course of the eighty years, since intervening, down which we propose to travel. I confess, I can think of no period in the world’s history which has produced more wonderful results.

I.—Population.

Eighty years ago, the entire population of the United States was less than *three millions*. Here are the figures for progressive decennial periods up to the present time:—

Decennial Periods.	Population.
1790 .....	3,929,827
1800 .....	5,305,925
'10 .....	7,239,814
'20 .....	9,638,131
'30 .....	12,866,920
'40 .....	17,062,566
'50 .....	23,191,876
'60 .....	31,429,891

*Note.* — The earlier figures are taken from the “ United States’ National “ Register,” 1862.

The total increase being about 28 *millions*. But as all progress is comparative, I may note that the population of Great Britain has increased during the same period about 12 *millions*,—the enumeration of 1861, giving the total of 20,223,746.

The increase in each country, at successive decades, is as follows:—

GREAT BRITAIN.			UNITED STATES.	
		<i>Increase.</i>		<i>Increase.</i>
1801	First census.	—	1790–1800.....	1,376,098
'01–11 .....		1,298,358	1800–10 .....	1,933,889
'11–21 .....		1,718,135	'10–20.....	2,398,317
'21–31 .....		1,879,322	'20–30.....	3,228,789
'31–41 .....		1,983,212	'30–40.....	4,195,646
'41–51 .....		2,018,972	'40–50.....	6,129,310
'51–61 .....		2,169,576	'50–60.....	8,238,015

The increase in the States during the last three decades is as marvellous as it is unparalleled.

It will naturally occur to the mind of every one that the secret of this enormous increase lies in the long continued and, until lately, increasing immigration. The results, however, are not so much affected by this cause, as may be shown by a very slight digression.

The American Government does not appear to have kept any accurate record of the annual migration to its shores, until the year 1820. From that date very elaborate and important records have been furnished. The following abstract will give the number of immigrants arriving in each decennial period, and also the total numbers during each progressive decade :—

Decennial Period.	Number of Immigrants arriving in each Decennial Period.	Total Arrivals during the Decade.
1820 .....	8,385	—
'30 .....	23,322	128,502
'40 .....	84,066	530,878
'50 .....	369,980	1,427,337
'59 .....	121,282	2,814,604
Giving a grand total in 40 years of .....		4,908,321
Or an annual average of 125,208 immigrants.		

The highest number reached in any one year was in 1854, when no less than 427,883 sought the United States as their adopted home. Since then the numbers have been very rapidly declining, and in 1859 were only 121,282, or less than the annual average for 40 years.\*

## II.—*Manufactures.*

Eighty years ago the annual value of United States' manufactures was less than *one million* sterling. I have not the figures in regular decennial order from that date, but as far as I possess them, these are the results :—

Decennial Periods.	Annual Value of Manufactures. £
1791† .....	1,120,000
*                   *                   *	*
1820 .....	12,553,277
'30 .....	22,329,093
'40 .....	96,655,641
'50 .....	211,119,179
'60† .....	400,000,000

I have no means of comparing the progress of the United States' manufactures with our own, as no system has yet been devised in this country by which accurate returns could be obtained,—and it

\* *Vide* "National Almanack," Philadelphia, 1863, and "Eighty Years' Progress," New York, 1861.

† "Eighty Years' Progress," vol. i, pp. 144—157.



is certain that the continued publication of such returns not having an authentic basis would do much harm.

Mr. Porter in his "Progress of the Nation," and Mr. McCulloch in his "British Empire," have pointed out the difficulty, if not the impossibility, of ensuring accuracy in such statements.

### III.—*Tonnage—Shipping.*

Eighty years ago the entire tonnage of the United States' mercantile marine was less than 200,000 tons; who can fail to be struck with its subsequent development? I give the figures decennially:—

Decennial Period.	Registered Tonnage.	Increase Decennially.	Decrease Decennially.
1790.....	274,377	—	—
1800.....	972,492	698,115	—
'10.....	1,424,784	452,292	—
'20.....	1,280,167	—	144,617
'30.....	1,191,776	—	88,391
'40.....	2,180,764	988,988	—
'50.....	3,535,454	1,354,690	—
'60.....	5,353,868	1,818,414	—

*Note.*—The statistics in this table are taken from the "Finance Report" for 1861, issued under the authority of the Secretary of the Treasury of the United States.

It may be stated in explanation of the retrograde movement shown in this table between the years 1810 and 1830, that during the period of the European Wars nearly the whole of the carrying trade of Europe fell to the owners of American vessels, and when Europe resumed her carrying trade, a corresponding depression came upon American shipping.

The first entry of steam tonnage in the American tables is in 1823, and commenced then with 24,879 tons. By 1830, it had reached 63,053 tons, and has since progressed decennially, as follows,—1840, 198,184 tons; 1850, 481,005 tons; 1860, 770,641 tons.

The progress of British shipping is only shown in the published returns since 1803, and its increase has been decennially as follows:—

Decennial Period.	Number of Ships.	Registered Tonnage.	Increase Decennially.	Decrease Decennially.
1803 .....	18,068	1,986,076	—	—
'10 .....	20,253	2,210,661	224,585	—
'20 .....	21,969	2,439,029	228,368	—
'30 .....	19,174	2,201,592	—	237,437
'40 .....	22,654	2,768,262	566,670	—
'50 .....	25,977	3,565,133	796,871	—
'60 .....	20,285	4,251,739	696,606	—

*Note.*—The figures in the last decade are taken from the “Statistical Abstract,” published under the authority of Government. Those in the previous decades down to, and including 1850, are from Mr. Darton’s Tables in Mr. McCulloch’s “British Empire.” It is difficult to account for the discrepancy in the number of vessels; the “Statistical Abstract” gives for 1850 (instead of the above) “number of vessels, 17,892;” and “tonnage, 3,137,212.” It may be that Mr. Darton’s Returns include the shipping of the British Colonies, while the “Statistical Abstract” does not include these.

Both the totals and the decennial increase during the last thirty years are decidedly in favour of the United States.

#### IV.—*Imports and Exports.*

Eighty years ago the annual value of United States’ exports was less than *four millions sterling*, and the amount of imports was only a few thousands greater. Now these have each assumed dimensions so vast that the uneducated mind (I mean in a statistical sense only) does not readily grapple with them. Again we present the figures decennially:—

Decennial Period.	Imports.		Exports.	
	Annual Value.	Total for Ten Years.	Annual Value.	Total for Ten Years.
	£	£	£	£
1790 .....	4,600,000	—	4,041,031	—
1800 .....	18,250,553	118,369,090	14,194,356	96,993,737
'10 .....	17,080,000	185,532,700	13,331,594	151,187,474
'20 .....	14,890,000	137,624,069	13,938,333	117,978,400
'30 .....	14,175,384	159,726,685	14,769,901	153,149,750
'40 .....	21,428,303	260,495,216	26,417,187	218,468,380
'50 .....	35,627,663	253,556,756	30,379,744	252,112,916
'60 .....	72,432,788	600,918,255	80,024,459	598,749,983

*Note.*—“United States’ Finance Report,” 1861.

There are several considerable fluctuations in the annual table of imports and exports; thus, in 1807, the imports were 27,700,000*l.*, and the exports were 21,668,610*l.*, while three years afterwards they



had fallen to the dimensions given above,—and again in 1806, the imports reached 29,420,600*l.*, while four years afterwards they were only half that amount. To overcome this difficulty, I have given along with the annual figures the totals of each decade,—and so the effects of the fluctuation are overcome, and the full force of the progress shown. Over an entire period of 72 years (1790-1861), the total imports were 1,795,265,442*l.*, and the total exports were 1,638,012,393*l.*, leaving the imports in excess of the exports by no less a sum than 157,253,049*l.*

The following are the imports and exports of Great Britain during the present century, arranged on the same plan of the annual values at decennial periods, and also of the total values of each decade. The fluctuations, year by year, have been much less than in the case of the United States.

Decennial period.	Great Britain.			
	Imports.		Exports.	
	Annual Value.	Total for Ten Years.	Annual Value.	Total for Ten Years.
	£	£	£	£
1801 .....	31,786,262	—	39,730,659	—
'10 .....	39,301,612	288,097,772	48,438,680	407,379,701
'20 .....	32,438,650	307,741,689	36,424,652	416,965,741
'30 .....	46,245,241	366,610,228	38,271,597	366,005,364
'40 .....	65,873,411	525,872,757	51,406,430	451,444,169
'50 .....	100,460,433	797,136,408	71,367,885	573,812,626
'60 .....	210,530,873	—	164,521,351	—

*Note.*—The imports in the above table are based upon the official values, while the exports are based upon the real or declared values, a very material point to observe; for in the year 1850 for instance, while the real or declared values show the sum stated in the table 71,367,885*l.*, the official value is put at 175,437,098*l.*—(See Darton's Tables, McCulloch's "British Empire," vol. i, p. 20.)

Now although the figures in this table are all the way through much larger than in the preceding table, the rate of progress bears no comparison with that of the United States, and it is observable that the annual values of the United States' returns are very rapidly approximating to our own.

The three great articles of United States' export are bread-stuffs, cotton, and tobacco. No accurate record of the values exported, appears to have been kept until 1821. Their interest is so great that we purpose giving in the Appendix complete tables from that date down to the present time. We therefore content ourselves with a brief abstract here. The sums represent simply the gross value, irrespective of quantity, but we add the price of cotton per

pound at each decennial period, and refer to the complete tables for extended information :—

Decennial Period.	Bread Stuffs.	Cotton.		Tobacco.
	£	£	Per lb. Cents.	£
1821 .....	2,468,380	4,031,496	16·2	1,129,792
'30 .....	2,415,086	5,934,976	9·9	1,117,273
'40 .....	3,813,507	12,774,061	8·5	1,976,791
'50 .....	5,210,274	14,396,923	11·3	1,990,204
'60 .....	9,054,370	38,361,311	10·85	3,181,309
'61 .....	18,973,347	6,810,296	11·07	2,756,942

We add the figures for 1861, in which year the bread-stuffs exceeded by nearly 4,000,000*l.* sterling, the exports of any previous year—the nearest approach being in 1856. The export of cotton in 1860 exceeded by nearly 6,000,000*l.* sterling, and by nearly 2,000,000 pounds weight that of any previous year,—the year 1859 being the nearest approach; and the export of tobacco was less in 1861 by nearly 2,000,000*l.* sterling than it had been in 1859.

#### V.—*Banks, Coinage, and Currency.*

Eighty years ago, the capital employed by the several banking establishments in the United States amounted to less than 600,000*l.* sterling. By 1820, it had increased to 27,422,122*l.*; and in 1861, the aggregate paid-up capital of the 1601 banks and branches then existing was 85,918,540*l.*, and their aggregate resources reached the enormous total of 203,172,003*l.*

In 1851, the paid-up capital of 879 banks and branches was 45,561,510*l.*, and their aggregate resources 119,445,385*l.*,—so that in ten years the increase of banks and branches is 722, the increase of paid-up capital is 40,357,030*l.*, and the increase of their aggregate resources is 83,726,618*l.*

The note circulation of the entire banks of the United States at the dates nearest to 1st January, 1861, was 40,401,155*l.* The note circulation of the United Kingdom at the same date was 38,861,426*l.*\*

Sixty years ago, the gold and silver coinage at the United States' Mint and its branches was, on an average, something less than 100,000*l.* sterling per annum. In the year ending 30th June, 1861, the gold and silver coinage produced at the Mint gave a total of 16,718,421*l.*

The following figures give the decennial progress distinguishing the gold from the silver :—

\* *Vide* "Statistical Abstract," 1862.



Decennial Period.	Annual Value and Total for Ten Years.	Gold.	Silver.	Total.
		£	£	£
1800	Annual .....	63,552	44,859	108,411
1810	Annual .....	100,287	127,754	228,041
—	Ten years .....	—	—	1,244,350
1820	Annual .....	263,806	100,136	363,942
—	Ten years .....	—	—	1,691,363
1830	Annual .....	128,621	499,080	627,701
—	Ten years .....	—	—	3,473,268
1840	Annual .....	338,160	342,435	680,595
—	Ten years .....	—	—	9,145,373
1850	Annual .....	6,396,347	373,220	6,769,567
—	Ten years .....	—	—	16,245,040
1860	Annual .....	4,689,456	650,127	5,339,583
—	Ten years .....	—	—	105,118,422
1861	Annual .....	16,141,680	576,741	16,718,421

*Note.*—The increase between 1840 and 1850 is simply explained by the discovery of gold in California, in 1849-50. *Vide* “United States’ Finance Report.”

Total amount coined at the United States’ Mint in 79 years,—in gold 133,730,987*l.*,—silver, 25,627,436*l.*,—together, 159,358,424*l.* sterling.

The amount of gold and silver coined at the Mint of the United Kingdom, since the commencement of the present century, is over 173,000,000*l.*

The following table gives the annual amount at each decennial period, and also the total of each decade :—

Decennial Period.	Annual Value and Total for Ten Years.	Great Britain.		
		Gold.	Silver.	Total.
		£	£	£
1801	Annual .....	—	—	450,242
1810	Annual .....	—	—	316,936
—	Ten years .....	—	—	*3,249,463
1820	Annual .....	—	—	1,797,233
—	Ten years .....	—	—	*15,915,573
1830	Annual .....	—	—	2,388,032
—	Ten years .....	—	—	40,751,596
1840	Annual .....	—	—	216,414
—	Ten years .....	—	—	14,987,944
1850	Annual .....	1,491,836	129,096	1,620,932
—	Ten years .....	—	—	39,296,204
1860	Annual .....	3,121,709	218,403	3,339,112
—	Ten years .....	56,120,133	3,462,119	59,583,252

\* These returns are defective. *Vide* “Statistical Abstract.”

The annual figures in this table fluctuate so considerably, that for all purposes of comparison the totals of the decades should be used. As an instance, the amount of gold and silver coinage from the British Mint in 1841 was 474,640*l.*,—in 1842 it was 6,269,888*l.*, or more than twelve times as much.

### VI.—*Real and Personal Property.*

Seventy years ago the valuation of real property in the United States gave as a result 95,858,652*l.*; and the number of acres of taxable land was 163,746,686. By 1850, or in sixty years, the real property valuation had increased to 939,806,341*l.*, or as nearly as possible tenfold; and the State valuations, at the nearest date to 1860, show a total of 1,863,538,052*l.*, or a twofold increase in less than ten years.

The personal property of the inhabitants of the United States was estimated by the Secretary of the Treasury, at the close of 1861, as being of the value of 700,000,000*l.* sterling.

The number of acres of taxable land had in 1820, *i.e.*, in thirty years, increased to 188,286,480; and as far as I am able to estimate from the published returns,\* the area is, at the present time, 409,769,633 acres.

At the census of 1850, and again at that of 1860, actual returns were obtained of the real and personal property of the entire population, but the real property valuation is not separated from the personal property valuation. From these returns for 1850 and 1860, and from estimates for former periods, made on the most reliable authority, the following table has been obtained.

Years.	Valuation of Real and Personal Estate.	Population.	Property to Each Person.
	£		£
1810.....	376,440,000	7,239,814	52
'30.....	752,800,000	12,866,020	58
'50.....	1,234,869,965	23,191,876	53
'60.....	2,825,304,735	31,429,891	89

The increase in the last 50 years is no less than 2,448,904,735*l.*, being at the rate of 650 per cent., while the population during the same period has only increased 334 per cent.

The following subdivision of the figures, given above for 1860, will not be without interest at the present day:—

\* "National Almanack," p. 321.



United States in 1860.	Valuation of Real and Personal Estate.	Population.	Property per Head.
	£		£
Northern or Free States .....	1,865,189,076	19,239,851	96
Border States .....	266,694,525	2,605,602	86
Southern States .....	693,421,133	5,631,637	76

In the above tables, the 482,680 slaves of the Border States, and the 3,470,121 slaves of the Southern States are not included in the property valuation. If this were done, an addition of this sort would have to be made: 3,952,801 slaves at 100*l.* (500 dollars) per head, giving a total cash value of 395,280,100*l.*, raising the property value, *per capita*, of the whole population considerably, and giving the South, or Slave States, very materially the advantage.

Of the value of real property in Great Britain there are no absolutely reliable statistics, but various estimates have been made from time to time, which cannot be very wide of the mark.

In 1798, Dr. Beck's valuation of England and Scotland amounted to 995,000,000*l.* Mr. Pitt, in that same year, on bringing forward his proposal for an income tax, estimated the annual value of real property at 45,000,000*l.*, which, at 25 years' purchase, gives a valuation of 1,125,000,000*l.*, or one hundred and thirty millions more than Dr. Becks. The assessments actually made on real property under the Income Tax Act give a valuation, on the theory of a 25 years' purchase, of 2,382,112,425*l.*,\* being an increase of more than cent. per cent. on the highest of the former estimates.

A valuation of *personal property* must also be more or less problematical. Mr. Porter ("Progress of the Nation," Ed. 1847, p. 608), after careful consideration of the many points involved, gives an estimate of the probable value of *personalty* in Great Britain in 1814, just prior to the close of the European wars, as 1,200,000,000*l.*; and considered that by 1846, or during thirty years' peace, it had increased by a thousand millions—making the value in that year 2,200,000,000*l.*

Mr. Joseph Lowe, in his "Present State of England," estimated the value of the entire private property of Great Britain and Ireland, in 1823, to be 2,139,720,000*l.*; and Mr. Pablo Pebrer, in his "Taxation, Revenue, Expenditure, &c.," published in 1833, gives the figures at 3,437,891,680*l.*, which, being tabulated on the plan just adopted, come out as follows:—

\* In 1860, the *annual* value of real property assessed to the property tax in Great Britain was 126,056,829*l.* = 3,151,420,725*l.* at 25 years' purchase.—ED. S. J.

Years.	Valuation, Real and Personal Property.	Population of the United Kingdom.	Property per Head.
	£		£
1823.....	2,139,720,000	21,193,488	100
'33.....	3,437,891,680	24,304,799	141

Of course the increase in both real and personal property in Great Britain has been very considerable since these dates, but the materials at hand are not sufficiently trustworthy to enable the table to be extended.

*Note.*—For the statistics in this section I am much indebted to the “National Almanack, 1863.”

### VII.—*Agricultural Progress.*

Of late years, or since 1840, the United States' Government has taken much pains to collect and collate statistics of agricultural produce. The first result in the year just named showed the annual value—

	£
To be.....	124,232,795
By 1850 it had reached .....	198,818,768
And in 1860 ,, .....	382,000,000

Showing almost a twofold progress in the last decennial period.  
In 1850, the lands in cultivation were:—

	Acres.
Improved .....	113,032,614
Unimproved .....	180,528,000
Total .....	<u>293,560,614</u>

In 1860:—

	Acres.
Improved .....	163,261,389
Unimproved .....	246,508,244
Total .....	<u>409,769,633</u>
Increase in ten years.....	<u>116,209,019</u>

The cash value of the farms was—

	£
In 1850 .....	654,315,085
„ '60 .....	1,330,176,501

The value of farming implements and machinery was—

	£
In 1850 .....	30,117,727
„ '60 .....	1,330,174,501



The value of the live stock was—

		£
In 1850 .....	108,836,103	
„ '60 .....	221,498,043	

The entire surface of the United Kingdom capable of cultivation does not exceed 77,000,000 of acres, and therefore admits of no comparison with the acreage of the United States.

A careful estimate made by Mr. McCulloch, in 1846, gave the annual value of the agricultural products of the United Kingdom at 217,551,977*l.* Nearly twenty years of improved farming under the spirited teaching of Mr. Alderman Mechi, Mr. Caird, and other agriculturalists, will not have failed very materially to increase the annual value of the produce since that date.

VIII.—Post Offices.

Returning to our former starting-point:—

Eighty years ago, the number of post offices in the United States was less than seventy, and the postal receipts hardly 7,000*l.* per annum. There are now nearly thirty thousand post offices; the annual receipt from them is approaching 2,000,000*l.* sterling, while the cost of the service approaches very nearly four millions, and the number of miles over which the mails are carried in the course of the year is approaching *ninety millions*,—the extent of the daily routes being close upon a quarter of a million of miles.

In this one section of our subject, the growth of the United States, and the policy of the Government in opening up the country by such means as postal facilities, comes out very forcibly, and deserves consideration.

Commencing our table in 1790, as we have no authentic data earlier, see what has been done.

Year.	Number of Post Offices.	Expenditure.	Revenue.	Extent of Post Routes in Miles.
		£	£	
1790 .....	75	6,428	7,587	1,875
1800 .....	903	42,798	56,160	20,817
'10 .....	2,300	99,193	110,336	36,406
'20 .....	4,500	232,185	222,385	72,492
'30 .....	8,450	386,541	370,116	115,176
'40 .....	13,468	943,647	908,704	155,739
'50 .....	18,417	1,042,590	1,110,594	178,672
'60 .....	28,498	3,834,121	1,703,613	240,594

In this country we have been accustomed to look upon the post office as a source of considerable revenue. In 1860, while the United States' mail service involved an expenditure of more than

two millions sterling over and beyond the receipts, in Great Britain the surplus, after paying all expenses, was nearly a million and a half.

I may add one or two statistical facts:—

Of the distance traversed by the United States' mails in 1859, the railways accomplished 27,268,384 miles, or nearly a third; steam-boats 4,569,562; and the rest was accomplished by stages, "sulkies," and "pony expresses," in the usual manner. The number of "dead letters" in the United States' post offices for the year 1861 was 2,550,000.

#### IX.—*Facilities of Communication.*

Eighty years ago, there were less than 2,000 miles of post roads in all the vast territory of the United States. In 1791, indeed, only 1,905 are enumerated. By 1811, the mileage had increased to 37,031; in 1833, there were 115,176 miles; and in 1859, 260,052 miles.

In addition to this quarter of a million of miles of post roads, we may now enumerate 28,270 miles of railway completed and in operation—with some 16,000 miles projected and in course of construction.

The progress of *railways* in America has been so rapid as to deserve especial record:—

In 1828 there were but .....	3 miles of railway,
„ '30 this had been extended to.....	43 „
„ '40 „ „ .....	2,369 „
„ '50 „ „ .....	7,777 „
„ '60 „ „ .....	28,270 „

The cost of constructing this 28,270 miles of railroad has been 201,834,400*l.*, and the Government has granted 25,403,993 acres of land, by way of aid and encouragement. The system of Government grants of land for railway purposes was inaugurated in the case of the Illinois Central, in 1850.

We have only to add, to make this part of the paper complete, that there are now some 15,000 miles of canals, and 50,000 miles of electric telegraphs completed and in operation in the United States.

*Note.*—In connection with this 50,000 miles of electric telegraph there are 1,400 stations for receiving and dispatching messages, and 10,000 clerks and operators are employed. The messages are estimated at 5,000,000 per annum, paying 400,000*l.*; in addition to which the Press pays about 40,000*l.* per annum for special despatches. ("Eighty Years' Progress," vol. i, p. 312.)

#### *Plan of the Paper.*

The plan which I have marked out for the present paper is a threefold one:—



First, to show the progress of the United States from the termination of the war of independence down to the commencement of the present struggle, which is hardly less a war of independence, in all its material aspects ;

Secondly, to trace its financial history during the same period ; and—

Thirdly, to examine critically the present and impending financial legislation and policy with regard to their effects upon the future destinies of this Great Republic.

In order to aid in the development of my plan, I have, whenever the circumstances appeared to admit of it, selected as the standpoint of comparison the incidents connected with our own progress. I know the Americans have never had, and have never sought for a higher standard of ambition than to equal,—aye, to eclipse,—this mighty though diminutive England of ours. And if they now snarl at us in the moment of their tribulation, we must look upon it as but a temporary ebullition of meanness, unworthy of a great people—expressive, perhaps, of a despair to which I still believe they have no right to abandon themselves.

I must here explain a point that I have thought it best, as well for the purposes of the comparison just referred to, as from the fact that the English public are not generally familiar with values rendered in United States' currency, to adopt throughout this paper,—and that is to render all the values given into English sterling. In order to simplify the process, I have invariably taken five dollars as equal to the English pound sterling,—but as the United States' dollar is really equal to 4*s.* 2*d.* of English money, it is clear that all the United States' values given in this paper are 4 per cent. below the actual values if rendered more exactly.

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*On the PAY and INCOME of the BRITISH SOLDIER, as compared with the RATE of AGRICULTURAL WAGES. By MAJOR-GENERAL SIR ALEXANDER MURRAY TULLOCH, K.C.B.*

[Read before the Statistical Society, 19th May, 1863.]

NEARLY three years ago, the Royal Commission appointed to inquire into the system of recruiting in the army, of which I was a Member, concluded its recommendations by a suggestion that, in order to prevent any misrepresentation on the part of those who were employed to procure recruits, a fair and full statement of the conditions and advantages attaching to service in the army should be drawn up and published by authority in the shape of a small pamphlet for general circulation throughout the country.

This suggestion originated in the belief that when due consideration was given to the advantages enjoyed by soldiers over persons of the same age among the agricultural population, they would be found sufficient to induce a larger proportion of that class to embrace the profession of arms. The idea was not altogether a new one, for Lord Herbert had about a year before, at an agricultural meeting over which he presided, expressed a similar expectation, and few men of his rank had better opportunities of contrasting the relative position of both classes.

Deeply, indeed, is it to be regretted that the premature death of this statesman prevented him from putting upon record, as Secretary of State for War, the facts illustrative of his views on the subject, in an official form, that the British peasant in determining upon a step of such importance as enlistment, might have some more trustworthy assurance of the advantage to be expected from it than is likely to be obtained through the interested medium of a recruiting serjeant, and might be induced to enter the army—not by those vague expectations which too readily present themselves to an untutored mind, and generally end in disappointment,—but from a firm conviction that men, who devote themselves to the service of their country, are not likely to be less liberally dealt with in the end, than those who continue to earn their livelihood by the more toilsome, though less hazardous occupation of agricultural labour.

Owing to repeated reductions in the army since the date of that Report, there has been so little pressure for recruits that no official statement, such as was then suggested, has been put forward; nor am I aware whether it is ever likely to be so. As however much infor-



mation, extending over a series of years, has been collected by the Poor Law Board respecting the Wages and Expenditure of Agricultural Labourers,\* I am induced, from that source, assisted by my personal recollection of the advantages usually enjoyed by our troops, to institute the present inquiry, in the hope that it may at least prove useful in correcting a prevailing impression, that the British soldier is inadequately paid as compared with the mass of the population from which he is selected.

If the remuneration of the soldier consisted of pay alone, the proposed comparison would not have involved much difficulty, but the advantages enjoyed by him are derived from so many sources, and it is so difficult to assign its precise value to each, that the utmost to be hoped for is an approximation to the truth,—sufficiently accurate, however, to warrant the conclusion that, even on the very lowest scale, the income of the soldier is not below the usual average of agricultural wages.

With the exception of those who have perused the valuable analysis by Mr. Purdy on the subject, few, I believe, are aware how very low the average of the daily wages really is, or that it does not exceed the following sums per week in each of the three kingdoms :—

	s.	d.
In England and Wales .....	11	6½
„ Scotland .....	12	11½
„ Ireland .....	7	1¼

Had the number of Agricultural labourers in each of the three kingdoms been equal, the average of the whole would have amounted to 10s. 6½d., but as the highest rates prevail in Scotland, where the agricultural population does not exceed 200,000, while about thrice that number in Ireland earn no more than the lowest rate, the necessary correction for the proportion in receipt of each of the three rates, after adding the extra harvest pay, reduces the average throughout the kingdom to 10s. per week, as the wages of each agriculturist fully employed, out of which he has to provide food, lodging, clothing, medicines, and medical aid, as well as those contributions to benefit societies, which must be maintained if he is to be kept independent of parish support, during sickness or want of employment.

The marked difference in these averages, in the three kingdoms respectively, will serve in some measure to explain the superior facility with which soldiers can be raised in Ireland as compared with England; for the average wages of the day labourer in the former, being considerably lower than the pay of the soldier, the prospect of

\* See the interesting summaries by Mr. Purdy, read at the meetings of this Society, on 21st May, 1861, and 15th April, 1862.

improving his condition is likely to afford a sufficient inducement to enlist. On the other hand, the higher rate of wages in Scotland, indicated by the above average, at once accounts for the difficulty experienced of late years in keeping up those Scotch and Highland corps, which in the times of the old American and Peninsula wars could sometimes be raised in a day. I am aware that by such conclusions, I am perhaps dispelling some of the illusions, in which non-military writers are prone to indulge, as to the popularity of a war having an influence in filling our ranks, but it is better perhaps to do so, than to trust too much to the effect of enthusiasm, when it is borne in mind that, popular as was the Russian war at its commencement, the army was 47,000 men under establishment when it was brought to a conclusion, even though very high bounties were offered to induce recruits to come forward.

One of the chief difficulties in bringing the wages of the agricultural labourer into comparison with the income of a soldier, is that the latter varies materially, according to the arm to which he belongs, and the length of his service coupled with the good conduct pay to which he may be entitled; the extent to which his income may be increased by promotion will for the present be left entirely out of view, and the comparison restricted to the case of a common agricultural labourer enlisting in any of the following arms of the service, for which no special qualifications beyond a certain height and an average physical development are required.

Such a recruit would receive weekly, including one penny per day of beer money, which may in fact be considered as part of the pay:—

	Per Week.	Daily.
	<i>s. d.</i>	<i>s. d.</i>
If in infantry of the line .....	7 7	1 1
„ foot guards.....	8 2	1 2
„ cavalry and military train ...	9 4	1 4
„ artillery .....	9 $5\frac{3}{4}$	1 $4\frac{1}{4}$
„ horse artillery .....	10 $7\frac{3}{4}$	1 $6\frac{1}{4}$
Average of the whole .....	8 2	1 2

This average is founded on the numbers in receipt of each of these rates of pay as shown by the army estimates for the year 1862-3, adjusted on the same principle as the average of agricultural wages; but lest any question should arise as to the admission of that principle, owing to some of the higher rates of pay being partly intended to cover slight additional outlay for equipments, I shall be content to adopt the very lowest rate, viz., that of infantry only, for my comparison, being satisfied that when the other advantages of



the soldier are taken into consideration, it will be sufficient to warrant the conclusion I propose to draw from it.

Among the first of these advantages is that of being entitled to add to the above rates of pay the following additional amounts for length of service combined with good conduct, viz.:—

	d.
After 3 years' service .....	1 per day.
„ 8 „ .....	2 „
„ 13 „ .....	3 „
„ 18 „ .....	4 „
„ 23 „ .....	5 „
„ 28 „ .....	6 „

Though the terms upon which the soldier becomes entitled to this good-conduct pay, are merely, that no offence, involving more than a week's confinement to barracks, shall have been recorded against him in the course of the year. I am aware of the possibility of some failing to fulfil even that moderate condition; and shall, therefore, assume the number who attain this additional pay, and the amount actually drawn by them, as the criterion for estimating its additional value instead of the nominal rate. On this principle I find that for a total of 126,909 rank and file, exclusive of those serving in India, the total good-conduct pay drawn according to the last estimates, was 126,835*l.*, or as nearly as possible 1*l.* a-year by each soldier; thus showing an average addition under this head of 4½*d.* per week, and raising the income under the several heads of pay, beer money, and good-conduct allowance, to within a fraction of 8*s.* a-week, for the lowest class of infantry.

But, besides this, the soldier is provided gratuitously with clothing, lodging, fuel, light, medical aid, and also with food at a rate greatly below its cost to the public, of which items it is necessary to estimate the full value before bringing his pay into comparison with the wages of an agriculturist, who has no such advantages.

In regard to the clothing there is little difficulty, because he receives either the following supplies, which are sufficient for all his wants, or their equivalent in money, viz.:—

	£	s.	d.
One tunic, or .....	—	18	6
„ pair of cloth trousers, annually .....	—	9	6
Two „ boots „ .....	—	17	—
One „ serge trousers, biennially, 7 <i>s.</i> .....	}	5	6
„ chaco „ 4 <i>s.</i> .....			
And quadrennially a grey great coat, value 23 <i>s.</i> 6 <i>d.</i> , } being for one year .....	—	5	10½
	<hr/>		
	2	16	4½

The soldier has no longer to pay for alteration of clothing; and the supply has of late years been on so ample a scale, and of such excellent quality, that he has nothing to provide except small repairs occasionally, and to keep up his stock of under-clothing.

According to this estimate, then, the value of what the soldier receives in clothing is equal to about 1s. 1*d.* per week. In comparing his income with that of the agriculturist, however, I am aware that this item may be liable to some exception, in so far as the dress of the latter may be of a coarser and less expensive material, and the nature of his occupation does not prevent an extent of repairs which would be quite inadmissible in a regiment; but even supposing that one half of the amount, which the soldier's clothing actually costs the Government, be assumed as the proper equivalent in the proposed comparison, that will be found quite sufficient to turn the scale in his favour; and is certainly the lowest expense which the agriculturist is likely to incur in providing himself with the secondary description of clothing he generally uses.

The value of the soldier's lodging, including fuel and light, straw for bedding, tear and wear of furniture, and use of cooking utensils, it is more difficult to estimate. If taken according to the actual cost of barracks, and of the supplies in kind issued by the barrack-master, the charge would be very heavy indeed; but, as the number in each barrack is constantly varying, any calculation founded upon that basis might prove erroneous; the amount which Government pays when the accommodation and supplies are provided by publicans or private individuals under the Billeting Act, would probably be much nearer the mark, viz., 4*d.* per night; but even supposing half that rate only to be assumed as the fair charge (and this corresponds very nearly to what Mr. Purdy has stated such accommodation to cost for single men), I should be warranted in assuming 1s. 2*d.* per week as the equivalent for lodging and barrack supplies, which the soldier does not pay for, but which the agricultural labourer has to provide out of his wages.

To the privilege of being provided with medicines, medical comforts, and attendance when sick, without reference to the expense which may be incurred, it is also difficult to assign a specific value, when the soldier's treatment takes place through the medium of medical officers (staff or regimental), seeing that much of the expense which it involves may arise less from the actual extent of sickness than from the circumstance that a large medical establishment has to be kept up at all times in every regiment to provide for the contingencies of warfare, or the prevalence of epidemic disease, and it is impossible to decide how much of the general charge incurred for these objects would be fairly applicable to such treatment as an agricultural labourer might only require occasionally;



but an approximation may readily be found in the rate at which Government contracts with medical practitioners for attendance on military detachments stationed beyond the distance at which they would be treated by the medical officers of their regiment, viz.,  $1\frac{1}{2}d.$  or  $2d.$  per man per week, which will accordingly be assumed as the value of the privilege referred to.

The soldier has also a considerable advantage over the agricultural labourer by the greater part of his food being provided for him at a price below its market value; but before attempting to estimate how much this privilege may be worth, it appears necessary to indicate the reasons for such a mode of provisioning him, instead of the simpler one of allowing what would be a sufficient amount of pay, and permitting him to expend it on such supplies as he thought proper. Experience has shown that, were the soldier left entirely to his own will in such matters, more might be expended on drink than on food, and that the latter might not always be of the quality best adapted to maintain him in health and efficiency. To prevent this, it is the practice in the army that, whatever the pay may be, a certain proportion must be devoted to the purchase of three-fourths of a lb. of meat at home, or 1lb. abroad (bone included), and 1lb. of bread at all stations daily; but as these items of diet vary considerably in price in different parts of the kingdom, and on some foreign stations cost even more than all his pay, it has been necessary, in order to leave a sufficient surplus for the other expenditure of the soldier, that the stoppage for bread and meat should never exceed  $4\frac{1}{2}d.$  at home, or  $3\frac{1}{2}d.$  per day abroad, the difference being in all cases made good by the Government. The lesser amount charged abroad is, however, more apparent than real, in so far as in consequence of the soldier receiving no beer money there, the surplus of his income, after defraying the cost of bread and meat, is precisely the same as at home.

So far as regards the cost of bread and meat on foreign stations, or in the field, it does not appear necessary to enter into any minute calculations of value, because, on the average of all, it is much above the stoppage made from the soldier, and, even were it otherwise, the difference could scarcely be considered an advantage to him, seeing that he could only have it when resident at a station where many of what he has been accustomed to consider the necessaries of life are proportionately dear. In regard to the bread and meat at home, there is no such difficulty however; what he may have then to pay for it below the market price is clearly so much gain, and the extent of the benefit to him may be inferred from the circumstance that, even for the year 1862-63, though one in which these articles of diet have been lower than usual, the Army Estimates show that the total expenditure upon the supplies by the Government has been 770,239*l.*, while the

stoppages for them have only realized 607,924*l.*; the difference of 162,315*l.*, divided among about 80,000 soldiers serving in the United Kingdom, clearly indicates that, exclusive of any advantage which they may derive by having their bread and meat contracted for in large quantities, instead of having to pay the shop price, each soldier gains absolutely to the extent of 2*l.* a year, or about 1½*d.* per day. Nor can this ever be balanced by the price in some years being lower than the stoppage, because, in that case, the soldier's interests would be protected by the excess being placed to his credit.

The soldier has also the benefit of receiving a quarter of a pound of bread daily at the contract price, which is usually one farthing a pound below that paid by agricultural labourers. This is to improve his morning and evening meal, and the cost of the tea, coffee, and sugar required for the same purpose is not only reduced by being purchased for him in large quantities, but, as it is under official inspection, the quality is much superior to what can usually be had elsewhere at such rates.

Passing over these minor advantages, the value of which it may be difficult to estimate, I shall at least be justified in assuming the reduced cost of the ration of bread and meat alone at 9½*d.* per week, making the total income of the soldier, as contrasted with the 10*s.* per week of agricultural wages, to be as follows:—

	<i>s.</i>	<i>d.</i>	
Pay and beer money .....	7	7	per week
Good-conduct pay .....	—	4½	„
Clothing, say even at half its cost .....	—	6½	„
Barracks, fuel, and light .....	1	2	„
Medical aid .....	—	2	„
Excess of rations beyond stoppage .....	—	9½	„
Total .....	10	7½	

Thus, it seems clearly established, that even an infantry soldier receives either in money or in money's worth about 7½*d.* per week in excess of an agricultural labourer; and if this superiority holds good in regard to the worst paid arm of the service, and the lowest rank of that arm, it must necessarily extend to all others; therefore any calculations with respect to them would be superfluous.

This total of 10*s.* 7½*d.* includes only what the soldier receives when serving at home, but at some foreign stations additional allowances are granted by the local legislatures to the following extent in addition to pay, viz.:—

	<i>d.</i>	
At Victoria, New South Wales, and South Australia .....	6	a-day.
„ Van Dieman's Land, Western Australia, and New Zealand .....	3½	per day.
„ the Cape and Natal .....	1½	„
In the East Indies and China .....	1¼	„ at a half, or
	2½	at a full batta station.



Arrangements are also made by the Indian Government, by which the soldier is enabled to obtain about a pint of English beer daily, for a sum not exceeding its price in this country, the cost of the difference being made good out of the local revenues.

According to the last estimates, the proportion in receipt of one or other of these local allowances, is about one-half of the whole army, but owing to their varying amounts I shall not attempt to add any of them to the general average of pay, more especially as some are intended to cover expenses incidental to the stations where they are granted, and cannot, therefore, be considered in every case as a virtual addition.

In comparing the aggregate pay and advantages of the soldier with the wages of the agricultural labourer, it must not be forgotten that the pay of the former is continuous, and that he is equally sure of it whether sick or well, whether present or absent, whether labour is in demand or the reverse, while the wages of the latter are liable to frequent fluctuations from all these contingencies, and he has no chance, without a total cessation of his income, of enjoying two or three months' leave of absence in every year, as the soldier does, retaining his full pay during the whole time.

It requires equally to be kept in view, that whenever the soldier has to exercise any trade or calling for the public service, he is entitled to an allowance under the head of "working pay," proportioned to the extent and importance of his labour, and the time it occupies. For instance, carpenters, masons, bricklayers, and blacksmiths are in frequent demand for the Engineer Department, bakers and butchers for the Commissariat Corps, carters, wheelwrights, drivers, and harness-makers for the Military Train, saddlers and farriers for the Cavalry and Artillery, most of whom receive on such occasions a working pay, according to their rating as artificers or labourers, of from 1s. 3d. to 9d. a-day, thus raising their income, in many cases, to double the ordinary pay of an infantry soldier; in the Sappers and Miners it is often much more, even for a private, if an intelligent workman. Those employed in altering or repairing the clothing or boots of a regiment, in making or repairing the roads beyond the limits of the barracks or cantonments, or on fortifications (elsewhere than in the field), all earn working pay in addition, and the same principle applies, though in a minor degree, to those engaged as officers' servants, or employed in the instruction, civil or professional, of other members of the corps. Indeed it must never be lost sight of, that the duties which may be exacted in return for the pay of a soldier at the rates before quoted, are those only which relate to drill and discipline; and that for all involving extra labour, with the exception of what are termed fatigue duties, he receives additional remuneration.

This is one reason why I have not attempted to bring the pay of soldiers into comparison with the wages of ordinary mechanics, because, to do so effectually, I must in justice have included, not the mere amount of military pay, but what some may be receiving for the extra services just referred to, the exact amount of which I have no means of ascertaining. Any extension of the comparison to the wages of persons engaged in trade or manufactures would have been equally open to objection, as these are so liable to be affected by over-production at one time, and stagnation of employment at another, of which we have so remarkable an instance at present in the cotton trade, but by carefully restricting my results to those deduced from the wages of agricultural labourers, the class generally most certain of finding employment when capable for and disposed to seek it, I trust I have avoided all such objections, besides confining myself to a class who unquestionably afford the best raw material for soldiers. Indeed, if a sufficient supply of them could at all times be obtained, we should probably seek for none other, as constant exposure has, in most cases, hardened their constitutions against every vicissitude of the weather, and labour at the spade and the plough produced that muscular development which renders the weight of a musket or knapsack no very serious burden in a long march.

Supposing, however, that it had been considered necessary to extend the comparison to the mechanic and manufacturing classes, there is an advantage which the soldier enjoys over them as well as over the mass of the population engaged in daily labour that would, I apprehend, fully counterbalance any temporary superiority in their income, viz., that of being entitled, after 21 or 24 years, according to the arm of the service to which he belongs, to a pension for life, averaging about 9*d.* per day, even if he have attained no higher rank than that of private; indeed, in the case of a non-commissioned officer, it is often of double that amount. How valuable is this expectancy, may be inferred from the fact that the estimates for the year 1862-63 show the total number on the pension list, for all causes and at all rates, to be 59,405, to whom there is paid yearly 1,081,956*l.* Many of these men, too, who have suffered from wounds or disabilities contracted on service have been pensioned much below 21 years' service, so that the average age on leaving the army is not usually above 39 or 40. The annuity value of such a pension, even of 9*d.* a-day only, cannot be less than 180*l.*, which I estimate as equivalent to an additional payment of 4*d.* for every day the soldier has served in the army. I am aware that by taking as the basis of this comparison the very lowest rate of pay which a soldier is likely to receive, I lay myself open to the objection of understating his advantages, as there is no doubt that an agricultural labourer might, by



enlisting in the Cavalry, Artillery, or Military Train, receive about 1s. 4d. a-day of pay and beer money, with ultimately from 3d. to 4d. of good-conduct pay, making, with 4d. a-day as the prospective value of his pension, a total of 2s. per day; but I am so strongly impressed with the necessity for avoiding any appearance of exaggeration in a question of this kind, that I would rather incur the objection alluded to, than induce men to enlist by holding out prospects which might never be fully realized.

Though I have thus given in detail the principal advantages enjoyed by the soldier himself, the comparison would be incomplete if I did not briefly advert to those which his wife and family enjoy by the custom of the service, provided his marriage has taken place with the commanding officer's consent, and in a proportion not exceeding 8 for every 100 soldiers serving at home or in the colonies, or 12 for every 100 serving in the East Indies. In that case the wife, if abroad, is entitled to two-thirds of a man's ration, and his children to a third or half a ration, according to age; being equivalent to a money allowance of about 4d. per day for a wife, and from 2d. to 3d. for each child. This boon, however, does not extend to home stations; the allowance there is restricted to 2d. per day for each family, to provide lodgings, when suitable and separate accommodation cannot be had in barracks. These allowances are entirely gratuitous on the part of the Government, no service whatever being exacted in return. Medical aid is also afforded, and the children are educated at the regimental schools at a mere nominal charge, being only 2d. per month for one child, 1½d. for two, and 1d. each, for three. These allowances and advantages may be considered of trifling moment, but as, in no other profession, are the wives and children paid as well as the husband, unless for work performed, it is a feature requiring notice in any comparison of this kind, more especially as, when the family is large, the expense attending their support and conveyance from place to place, is quite as great as that of the soldier himself, so that the public has to pay double—a sufficient reason for the restriction on the numbers permitted to marry in the army.

When all these extra allowances are taken into consideration, as well as those for educational and religious purposes, marching money, &c., which involve details of too extensive a character to be discussed within our present limits, it will not perhaps excite surprise that, though the nominal pay of an infantry soldier is only 1s. a-day, there is expended on his behalf nearly double that amount.

In working out this comparison, no one ought to be more sensible than myself how very different in some respects is the life of the British soldier, exposed to all the risks of warfare and of service in

foreign climates, compared with that of one who has seldom to move beyond the limits of his parish; but if these risks will admit of an equivalent, I think it may be found in the soldier's exemption from daily toil, and from the harrassing cares which the constant struggle for subsistence for himself and family usually involve, coupled with the pension he is almost certain of attaining if he continue in the service beyond the ten or twelve years of his first engagement; and I trust that no apology, therefore, is required for comparing military pay with agricultural wages, though the former involves so many risks which do not in any way attend the latter.

The result of Mr. Purdy's investigation, however, having shown that within the last quarter of a century very considerable improvement has taken place in the rates of agricultural wages, it may prove an interesting feature of our inquiry to ascertain whether the improvement in the pay and condition of the soldier has fairly kept pace with this, and that he is not likely to be left behind in the progress which the agricultural labourer seems at length making towards a more comfortable livelihood. For this purpose it is only necessary to refer to the numerous warrants which have been passed since 1836 for the benefit of the army.

In that year the pay and beer money were, as now, 1*s.* 1*d.* per day, but the soldier was then subject to a stoppage of 6*d.* at home, and 5*d.* on foreign stations, for the same quantity of bread and meat as he now obtains for 4½*d.* or 3½*d.* respectively; thus virtually creating an addition of 1½*d.* per day to his income. In those times, too, he had to provide a complete equipment of necessaries out of his bounty on enlistment, whereas now he is entitled to them free of cost, and has only to keep up the supply out of his pay. Recently he has also been allowed an additional pair of trousers and boots, and been relieved from all expense attending the first alteration of his clothing; a grant of 1*d.* per day has also been made to the ten best marksmen in every company, and 2*d.* to the ten best in every regiment. The right to good-conduct pay now commences after three years, and increases by a penny a-day at the end of every fifth year; whereas, prior to 1836, the soldier received no increase till after 14 years' service, and then it was limited to 2*d.* per day. The soldier's pension, too, which in 1833 had, for service alone, been reduced to 6*d.* per day, was raised to 8*d.* for the same period, with the further privilege of adding a portion of his good-conduct pay to pension, so as to make the amount usually received by a private about 9*d.* a-day on an average. The pay of the serjeants and other non-commissioned officers above that rank has also been raised about 2*d.* per day, and a sum of 4,400*l.* a-year distributed among them in annuities of from 10*l.* to 20*l.* a-year each, in addition to the ordinary pension, also about 650*l.* a-year in annuities to men of any



rank, who have received the Victoria Cross. Three gratuities of 15*l.*, 10*l.*, and 5*l.* each a-year are also granted to the most deserving men of every corps annually, with a medal for long service and good conduct.

The effect of all these improvements, present and prospective, cannot be estimated at less than an increase of 25 per cent. in the pay or other advantages of the soldier, as compared with his position in the year 1835 or 1836, which appears to present a fair contrast to the rise in agricultural wages, as given by Mr. Purdy, for the same period, viz :—

	Interval in Years.	Weekly Increase.	Increase per Cent. in the interval.
For England and Wales, 1837-60 .....	23	s. d. 1 3	12·1
„ Scotland, { 1835 } 1860.....	20	3 9½	49·5
„ Ireland, 1844-60 .....	16	2 7	57·4

Thus, the increase to the soldier has been, so far as regards England and Wales, nearly double what has fallen to the lot of the agricultural labourer; and though it is considerably below that remarkable increase which has taken place in wages, both in Scotland and Ireland during the same period, yet if the proper correction be made for the much more limited number of the population in these two countries, compared with England and Wales, as must be done to obtain a general average for the whole kingdom, that average will be found below 25 per cent. It may, therefore, be assumed that the soldier's income and advantages have, on the whole, kept pace with the general improvement in wages. Indeed, ever since Lord Howick became Secretary at War, in 1835, there has been a gradual improvement in the pay, the prospects, and the comfort of the soldier, presenting a striking contrast to the state of depression under which he previously laboured, and which must ever induce a grateful recollection of the measures originated by his lordship, and since so ably followed by his successors, particularly the late Lord Herbert.

However, it is not merely pay or wages which have to be considered respectively in such a comparison as this, but the necessities of life which these will purchase, and the balance which will in either case remain over for other expenditure, and here the soldier, from the facility of buying in the cheapest market and usually in large quantities, has a still further advantage as may be seen from the following scale of the usual diet and cost in an infantry regiment stationed at Aldershot :—

Daily.	d.	Actual Cost. d.	Reduced Cost to Soldiers. d.
1 lb. of bread .....		$1\frac{3}{8}$ }	
$\frac{3}{4}$ lb. of meat .....	$5\frac{3}{4}$ per lb. =	$4\frac{5}{16}$ }	$4\frac{1}{2}$
$\frac{1}{6}$ of an oz. of tea.....			
2 oz. of sugar .....			
$\frac{1}{3}$ „ coffee .....		$1\frac{5}{8}$	$1\frac{1}{2}$
$\frac{1}{86}$ „ pepper .....			
$\frac{1}{2}$ „ salt .....			
$\frac{1}{4}$ lb. of bread extra .....			
Vegetables, potatoes, and milk, actual cost.....			$1\frac{1}{2}$

This, with one half-penny a-day for washing, and about one penny for repairs and keeping up his supply of under clothing, makes a total expenditure of  $9d.$  per day for the infantry soldier, and leaves about  $4d.$  a-day to save or expend as he may think proper, after all his necessary wants have been provided.

The expenditure for similar items by an adult agricultural labourer, is not given in any of Mr. Purdy's tables; the statements there are usually framed on the expenditure for a man, his wife, and several children, but from these it would appear that so far at least as regards the more expensive items of animal food, tea, coffee, sugar, &c., the soldier gets more for himself alone than the agriculturist for himself, his wife, and three or four children, and that the outlay of the latter has to be confined to the cheaper supplies of bread, cheese, milk, and potatoes, or oatmeal. Even with that restriction, little or nothing appears to remain over to contrast with the soldier's surplus of nearly half a crown per week, and which increases  $7d.$  per week every five years, provided his conduct is satisfactory.\*

In this comparison I have left out of view the opportunities which the soldier has of advancing himself in his profession by superior intelligence, steadiness, and training, which, supposing even that they gain for him no higher rank than that of a non-commissioned officer, may double both pay and pension. Opportunities of bettering his condition may no doubt also present themselves occasionally to the agricultural labourer; but I apprehend that these are likely to be much more rare than in the army, owing to the obstacle which constant occupation in agricultural life presents to further improvement so soon as boys can by daily labour contribute even in the smallest degree to their subsistence. The large portion of the soldier's time, however, which it is difficult to occupy in pursuits purely professional, not only affords ample leisure to qualify himself for promotion, but often induces him to study merely as a resource against the dull routine of his life in quarters. To soldiers thus

\* The large sums paid into the regimental savings banks, as reported annually to Parliament, afford sufficient evidence that this surplus is, in many instances, accumulated by the soldier. How rarely has the agricultural labourer any similar balance at his bankers!



disposed the schoolroom is always available, with instructors competent to advance them in any branch of common elementary knowledge they may wish to cultivate; suitable libraries also are provided, affording facilities for attainments either professional or otherwise, which no agricultural labourers can possibly look forward to.

To afford some idea of the prizes thus brought within the reach of any industrious or intelligent soldier, however great may have been the defects of his education originally, it is only necessary to refer to the following summary, showing, according to the estimates of the year 1862-63, the numbers below the rank of commissioned officer who are in receipt of pay considerably beyond that of private.

Total Number in the Army.	Ranks.	Total Annual Pay to this Class.	Average Annual Pay to each.	Range of Daily Pay.			
		£	£	s.	d.	s.	d.
582	{ Regimental serjeant-major.... Troop or company ,, .... Quartermaster serjeants..... }	34,847	60	2	8	to	5 -
1,182	Colour and company serjeants	54,569	46	2	6	„	3 4
1,387	{ Staff serjeants, orderly room clerks, serjeant instructors of musquetry, bandmasters, &c., master gunners ..... }	73,963	53½	2	2	„	3 11
6,006	Serjeants .....	246,972	40	2	-	„	3 -
147	{ Trumpet, drum, and bugle major .....	5,877	40	2	-	„	3 -
7,659	Corporals and bombardiers ....	218,071	28½	1	4	„	2 4
about 4,000	{ Serjeant-majors and quarter- master serjeants of militia and yeomanry, &c., on per- manent pay .....	150,000	37½	2	-		—
20,963							

As the number of privates in the army from whom these superior ranks are selected was in the same year 116,492, it follows that between 1 in 5 and 1 in 6 of the whole must attain one or other of these rates of pay, the lowest of which is from 1s. 4d. to 2s. 4d. per day, with beer money of 1d. a-day, superior clothing, lodging, and other advantages, besides nearly double the pension of a private.

These chances of promotion do not include those which occur in that portion of the army in the East Indies, amounting to about one-third of the whole, but as the proportion of the higher grades to privates is much the same in that country as in the colonies and at home, it would not have materially affected the results had the calculation been extended to them.

I have also left out of consideration the chance of ultimate pro-  
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motion to the rank of a commissioned officer, because though that is by no means uncommon, particularly during a period of active warfare, or when large augmentations to the army take place, it may be doubtful whether the change does not deteriorate rather than advance the pecuniary interests of the person promoted, as may be seen by the following summary of the relative position of a serjeant-major before and after such promotion:—

	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
His pay as serjeant-major of infantry, including beer money, per day is .....	—	3	3	
All his clothing and equipments are provided free.				
His diet, consisting of breakfast, dinner, and tea, costs.....	—	10	$\frac{1}{2}$	
Remains for personal expenditure as serjeant-major ....	2	4	$\frac{1}{2}$	
			3	3
<hr/>				
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
But when promoted, his pay is raised to 5 <i>s.</i> 3 <i>d.</i> per day, less about 2 <i>d.</i> for mess and band fees, leaving only .....	—	5	1	
And he has to keep up his equipments and clothing, costing at the very least 20 <i>l.</i> a-year, or daily .....	1	1		
And the cheapest rate of officer's messing known in the army would cost for breakfast and dinner.....	2	6		
			3	7
Leaves for personal expenditure as ensign .....	1	6		
			5	1
				<hr/>

Thus, even supposing that he never drank wine or joined in any of the other expenses of a mess, he would be considerably out of pocket by his promotion, besides having to support the rank of a gentleman in the new position to which he had attained.

Unless, therefore, when an appointment as adjutant, quartermaster, or musketry instructor, can be combined with his rank of ensign, which does not often happen, the promotion tends rather to deteriorate than improve the income of a serjeant, a reason which will sufficiently account for the numbers who decline such promotion, and for my not founding upon the prospect of it as any advantage which will admit of calculation. In fact the position of the non-commissioned officer has been so much improved of late years as to render the attainment of the commissioned ranks less an object than it once was.

These prospects of promotion, however, would be of little avail if ample opportunities were not afforded to all ranks to qualify themselves for attaining it; perhaps, therefore, with the view of showing how much is done by the Government in this respect, it may be useful to submit the following summary of the staff employed and yearly expenses incurred for educational purposes, irrespective altogether of what may be considered professional or scientific:—



	£	s.	d.
3 Assistant Inspectors of schools in Great Britain and Ireland } at 500 <i>l.</i> a-year each .....	1,500	—	—
3 Local Inspectors on the Mediterranean, at 3 <i>s.</i> a-day .....	164	5	—
266 trained schoolmasters, each averaging 80 <i>l.</i> a-year .....	21,097	—	—
33 acting „ at from 1 <i>s.</i> to 1 <i>s.</i> 6 <i>d.</i> a-day .....	684	—	—
For detachment „ and soldier assistants .....	576	2	6
71 pupil teachers, at from 4 <i>l.</i> to 17 <i>l.</i> 10 <i>s.</i> a-year each .....	388	—	—
154 permanent orderlies, at 1 <i>s.</i> a-week each .....	404	6	—
170 pensioners acting as librarians .....	2,500	—	—
Travelling and contingent expenses of assistant inspectors and others .....	800	—	—
Apparatus for illustrating lectures .....	400	—	—
Repairs of school books 200 <i>l.</i> , of library books 500 <i>l.</i> .....	700	—	—
For regimental libraries and reading rooms of royal artillery and } royal engineers .....	540	—	—
Expense of schools for royal artillery and royal engineers .....	3,000	—	—
„ normal and model schools at Chelsea .....	4,000	—	—
Proportionate cost of education for the forces in India, not } included in the army estimates supposed about .....	18,000	—	—
	54,753	—	—
Add for barrack allowances, clothing, rations, and pensions to } those employed, say .....	15,000	—	—
Total .....	69,753	—	—

Or in round numbers 70,000*l.* a-year.

This is a large sum to be provided by the State, even if all the soldiers in the army availed themselves of the opportunities of education which it affords, but as the average number in daily attendance was, according to the Report of the Council of Education for 1862, only 17,633 together with 6,131 grown boys and girls, it follows that the average cost of each person instructed cannot be less than 3*l.* per annum, which is exactly double the cost of the education of each pupil in inspected schools in civil life, and treble the cost in uninspected schools, as shown in a paper read before this Society by Mr. Horace Mann, on 4th March, 1862. The education even of the girls is not forgotten in the army, as will be seen by the following summary of the expenses incurred in their account.

	£
For 226 trained schoolmistresses .....	5,980
„ 57 acting „ .....	946
„ charge for training „ .....	400
„ the purchase of industrial materials .....	1,500
	8,826
Add about one-third more for similar expenses on account of the } regiments in India, not appearing in the army estimates, say .....	2,942
Total .....	11,768

This being for the education of 2,691 grown and 3,005 infant girls, as shown by the Report of the Council of Military Education,

would make the rate for each about 2*l.* per annum, or considerably beyond the usual cost for the education of female children not in the army.

Perhaps I may be excused this little digression about the education of the soldier, at a time when so much attention is being paid to the subject in civil life, were it only to show that if a large proportion of our army remain in a state of ignorance which completely precludes their sharing in the extra pay and advantages derived from promotion, it is entirely their own fault. According to the latest returns from the Adjutant-General, published by the Council of Education, it appears, that notwithstanding the pains taken of late to train a class of schoolmasters very superior to those who could be procured some years ago for that appointment 18·9 per cent. of the privates are still unable to read or write, and 19·7 can read but not write, being a total of 38 per cent. who are quite precluded from rising in their profession, though Government has afforded them sufficient means of improvement to do so without any expense on their part. According to the returns of 1860, too, this state of matters is not improving, the numbers reported as uneducated being greater than three years before, except in the Artillery and Foot Guards.

If any reason can be given for this, I apprehend it may be sought for in the circumstance that when an increase of pay could only be attained by promotion or service for the long period of 14 years, the private soldier was disposed to take more trouble to qualify himself for a higher position; in order thereby to add to his comforts, but now when his good-conduct pay may begin after three years, and go on increasing to 5*d.* or 6*d.* a-day, he finds his income sufficient for the most pressing of his wants, and is not disposed to add to the amount, if it involves a necessity for going to school again. If that explanation can be accepted, it would appear worthy of consideration whether the increase of 1*d.* per day at the end of three years, should be made contingent—not on good conduct merely, but on the soldier having acquired within that time the first principles of reading, writing, and arithmetic, and that before every successive addition of 1*d.* per day for good conduct, it should be ascertained that he has at least retained his original acquirements. In the progress of time the beneficial influence of a large proportion of the good conduct men in the discipline of a regiment, must otherwise be in a great measure lost, so few of them being qualified for promotion beyond the rank of private.

It might have proved interesting here to contrast military pay with the rate of agricultural wages in other countries, but even had time admitted of this, there is a peculiarity in the constitution of the armies of nearly every State on the Continent, which must have



affected the results too deeply for much reliance to have been placed on them. Happily in our country military service is entirely voluntary, none need engage in it except from the conviction that it is likely in some way or other to improve his position, so that the rate of pay has to be regulated accordingly, but in other countries the conscription determines who must become soldiers, and the Government has to expend such an amount only as will clothe, feed, and lodge them, and provide a surplus of about a half-penny per day of pocket money to each. From this obligation of service the recruit has no escape, however high may be the wages in civil life, except by providing a substitute at a cost which even now, when France is at peace, amounts to 2,300 francs, or 92*l.* sterling.

It is true that this amount is not paid by every conscript, the proportion able to provide substitutes rarely exceeding one-fourth, but as in France none can be had under that rate, it must be held to represent the difference between the average value of the conscript's labour at his own calling and his pay as a soldier, and that difference extended over the 100,000 conscripts required annually, would amount to about 9,200,000*l.*, which the French nation thus obviously pays either in money or money's-worth for its army, beyond what appears in the estimates of that nation. In other words, 13*l.* is thus abstracted from every conscript during each of the seven years he has to serve, in the value of his forced labour.

The greater share of the military expenditure of that country is thus made to fall—not on the rich, who are best able to afford it, and are generally most interested in the issue of any contest warranting an appeal to arms,—but on the poor, whose labour is the sole capital for the support of themselves and their families, and who take comparatively little interest in the objects at stake. In Britain we have the pleasing contrast, not only that it falls chiefly on those who are best able to bear the burden, but that in the present day none have to serve in the army except those who voluntarily enlist; and I trust the facts submitted this evening to the Society will be sufficient to show that when they do so their position and prospects are decidedly superior to what they are likely to have been had they continued to earn their livelihood by agricultural pursuits.

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## MISCELLANEA.

I.—*A PROPOSAL for an ACT to authorize the ISSUE of LAND DEBENTURES in connection with SALES made by the LANDED ESTATES COURT. By MOUNTIFORT LONGFIELD, LL.D.*

“IF a gentleman in possession of a good landed estate is desirous of borrowing money upon the security of his land, he often finds it a matter attended with delay, expense, and inconvenience. He must, in the first place, find a person willing to lend him the required sum, on sufficient security. This is a matter of more or less difficulty inherent in the nature of the transaction. He cannot borrow unless some other person is willing to lend. But when this necessary step has been surmounted, he has still to struggle with the artificial difficulties interposed by the present state of the law. The lender must be satisfied with the title of the estate, and its value; and this is generally a source of great delay and expense. If any circumstance should break off the negotiation, the borrower must begin again with some other lender; and the expense already incurred, or the greater part of it, becomes useless. The legal difficulties, and delays, and expenses, in the process of procuring a loan, are so great, that the borrower frequently pays a considerable sum in the form of agency or procuration fees, in order to obtain some reduction of those inconveniences. In the meantime, the lender suffers the inconvenience of uncertainty in the investment of his capital. When the loan has been contracted, the money paid, and the security given, both parties are still liable to the inconvenience caused by the law. If the lender has taken good security, the borrower is deprived of the possession of his title deeds, and is exposed to some difficulties in dealing with the tenantry on his estate. If the lender wishes to sell or transfer his claim, he has to incur the delays and expenses already noticed, and to satisfy the new lender of the value and the title to the estate. This expense, falling upon the owner of the estate, or of the mortgage, must be incurred upon every occasion of a transfer; and if the borrower pays off the loan, the effect of the Irish Registry Act is, that the mortgage, with all its subsequent transfers, and its ultimate repayment and reconveyance, become part of his title, adding to the complexity and expense of the abstract which he must produce when dealing with his estate. It will evidently be a great advantage to the owners of land, if they are enabled to borrow money by a cheap and expeditious process, without complicating their titles, or interfering, unnecessarily, with their legal powers over their estates; while the capitalist, at the same time, may be provided with a secure and ready investment for his money. This double advantage may, I conceive, be obtained by a system of land debentures, in

*Note.*—Reprinted from the “Journal of the Dublin Statistical Society” for April, 1862.



connection with sales and declarations of title, in the Landed Estates Court.

“Let us suppose that an estate, worth 2,000*l.* a-year, is sold by the Court for 40,000*l.*, and that the purchaser desires to have the power of raising money by debentures. He takes the conveyance accordingly, subject to twenty debentures for 1,000*l.* each, which should be expressly mentioned in the conveyance. Those debentures should be drawn in a form to be settled by the Court, and should include a copy of the conveyance of the lands on which they are charged; so that the holder of a debenture should know, accurately, the nature and value of the security. Those debentures are handed to the purchaser together with his conveyance, and are to be considered as real property, descendible with the estate, but not merging in it, as long as they belong to the owner of the land. An account of them and of every sale and transfer should be kept in the Court book. Every debenture entitles the holder to interest at the rate therein mentioned, and also to repayment of the principal money at a time therein specified. This, of course, does not lead to any payment as long as the same person owns both the estate and the debenture. But the debenture may be assigned, at any time, by a short deed, to be registered in the books of the Landed Estates Court. At the same time, the Court will cause a note of this assignment to be endorsed on the debenture; and the title of the new holder will then be perfect in law and equity, as if he had so much Government stock transferred in the books of the Bank of England. It will be the duty of the Court to make proper rules and forms to prevent forgeries or frauds in the assignments. An equitable assignment may be made by a written instrument, accompanied by a deposit of the debenture, and this equitable assignment should entitle the assignee to demand a legal assignment to be registered in the books of the Court. In case of the loss or destruction of any debenture, the Court is to have power, after proper proof and inquiries, to issue a new debenture in its place. The holder is armed with ample power to enforce the contract expressed in the debenture; but no proceeding shall be taken to recover more than two years' arrears of interest on a debenture. An assignment may be made to any number of persons, not more than four, with a condition that no smaller number shall be permitted to assign. When an assignment is made to trustees on this condition, on the death of one trustee the survivors cannot assign until a new trustee is appointed, either according to the provisions of the deed, or by an order of the Court; but a purchaser is not bound by the trust, provided he obtains a legal assignment on the books of the Court from the proper parties. Any holder of a debenture may, by a proper instrument, registered in the books of the Court, release and extinguish it altogether. We have put the case of a purchaser of an estate for 40,000*l.* who takes, at the same time, twenty debentures of 1,000*l.* each from the Court. (No inspection of the Registry can take place without the permission of the Court.) If he wants, at any time, a temporary loan of money, he will have no difficulty in procuring it from his banker, on a deposit of a suitable number of debentures. This, without any legal expenses, will be a sufficient

equitable security, and a proof that his estate is still unincumbered. If he pays off the debt, he gets back his debentures, and is replaced in his original position, without anything appearing on the record to complicate his title. If he wishes to settle his estate, he assigns to trustees as many debentures as are necessary to raise the charges for younger children, &c., and extinguishes the rest. The estate is then settled, subject to the debentures, and the settlement is relieved from all those clauses relating to the charges which add so much to its length and complexity. When the proper time comes for raising the charges, the trustees raise the necessary sums by selling the debentures, or assigning them to the parties entitled, according to their equitable rights. If the owner of an estate and debenture, or of a debenture only, desires to contract a permanent loan, he may hand the debenture to a stockbroker, who will dispose of it in the market for its fair price, like so much railway stock, and in this manner obtains the money without any legal expense or unnecessary delay. The person, on the other hand, who wishes to procure an investment for his money, applies to his broker to procure him debentures of such a nature as he requires. The purchaser of a debenture has secured to him, by law, a perfect title to a first encumbrance, without the possibility of deception on this point; and he has also the advantage that the value of the land has been carefully investigated by a disinterested and competent tribunal. It is not too much to say, that no ordinary mortgage can be compared to such a security. Admitting even that the Court may make a mistake as to the value of an estate, it is most unlikely that such error will be so great as to prevent the debenture from being recovered; and it is certain that such cases will bear a very small proportion to the number of cases in which persons now lose money, which they imagine they have lent upon good security. At present there is no regular market or market price for such securities as mortgages, charges on land, &c. The person who wants money does not know how long he may have to wait, or how much he may be compelled to pay for it. On the other hand, the person who has money to lend does not know what terms he may be able to obtain, or how long he may be obliged to keep his money idle. One man may be for some months unable to procure a good investment at  $4\frac{1}{2}$  per cent., while during the same period another man has succeeded in obtaining 5 per cent. for his money, on unexceptionable security. Each case is a separate transaction, affording no indication to enable any one to conjecture what may be the result in a different instance. But with the proposed plan of debentures, each will be able to borrow or lend at the market rate, which of course may be subject to fluctuations.

“ Every new system, when it is proposed, is likely to meet with considerable opposition. To many minds its novelty is of itself a sufficient objection. This feeling is, perhaps, useful to the public when it is not indulged in to an extravagant degree. It opposes a check to rash innovations, and requires that every new proposal shall be subjected to a rigorous examination. The result is, that many mischievous proposals are crushed, and some useful ones are improved, and if a few good measures are rejected, that rejection only



causes a certain delay. Men's minds become accustomed to a useful proposal by much discussion; the frightful novelty wears away; converts to reason are made from time to time; the measure finally is carried, and after a short time men look back with wonder, and are unable adequately to conceive the feelings which led themselves or their ancestors to oppose an improvement which they now feel to be a thing of absolute necessity.

"I shall not, therefore, feel discouraged at any amount of opposition that may be offered at first to the proposed system of land debentures. I shall examine every argument with perfect impartiality. If they appear valid, I am ready to yield to them. If they are invalid, I shall endeavour to answer them; and, as far as I am able, I shall notice every objection that occurs either to myself or that has been suggested by others.

"This proposal of land debentures at the present time has not the merit or the demerit of novelty. It was proposed not very long after the introduction of the Incumbered Estates Court into Ireland, and it was opposed by the enemies of that Court, who looked upon it as designed merely to keep alive the Court which they vainly hoped was on the point of failing from want of purchasers to buy the land then in the market. That hope has not been realized. The Court has been placed on a permanent foundation, the system of parliamentary title is established in Ireland too firmly to be shaken, and all parties ought now to unite in endeavours to make the system as beneficial as possible to the owners of land and of capital, and to the public at large.

"The first objection which is made by many to this and every other similar proposal is, that even if the details were perfect, so as most successfully to accomplish its object, still that the object itself is mischievous, and that, therefore, the proposal ought to be rejected. It would, they say, increase the extravagance of Irish owners of land by furnishing them with increased facilities for running into debt. To the few who have even a slight acquaintance with the first principles of political economy such an objection will seem unworthy of an answer. They will not feel it necessary in each discussion to prove the elements of the science. To tell them that two and two are seven would scarcely appear more absurd than to say that it can be for the welfare of the nation to restrict the liberty of the subject in matters merely prudential. In money matters enforce contracts, punish robbery, theft, and fraud, but do not restrict in any manner the liberty of any individual, under the vain idea of substituting the guardianship of the State for his own prudence. As a general rule, each man has more regard for his own interest, and more knowledge of its true direction, than the State or the legislator can possibly possess.

"But let the objection be examined, without relying on its opposition to well established general rules. It is founded on the supposition, that it is necessary or usual to borrow money on mortgage in order to spend it. This is by no means the common course of affairs. There is not so much method in the madness of the prodigal. He does not borrow to spend, but he borrows to pay. The facility given by shopkeepers and retail dealers are so great that

no man feels the slightest difficulty in spending considerably more than his income without contracting a loan.

“ The excess of expenditure over income may proceed for a longer or shorter period, according to the greater or less degree of skill with which the prodigal contracts his debts, only paying when he must and getting credit when he can. But he cannot secure an indefinite extension of his debts to tradesmen. After some time it becomes necessary to raise money on mortgage; he puts the affair into the hands of his attorney, he gets the required sum on good terms or bad terms, as the case may be; but get it he must, no matter what may be the expense, or the rate of interest. This revives his credit with his tradesmen, and he continues in the same course until he is utterly ruined.

“ During the same period he generally also borrows on bonds or mortgages any small sums that are offered to him by such of his neighbours as prefer high interest to good security. In all this road to ruin the spendthrift never seriously reflects on the consequences. If he did, he would not follow it. No one can believe that a man who would be so prudent as to live within his income, if the rate of interest was 6 per cent., would run into extravagance because the rate was reduced to three or four.

“ Another class of charges which sometimes press heavily on Irish estates is, the provision made by will and marriage settlements for younger children. In such cases the rate of interest is fixed by the instrument enacting them, and according to the will of the party who imposes the charge, and it is plain that any improvement in the law of land charges will have no effect upon their number or magnitude.

“ But there is another class of charges for money borrowed by an owner who requires it in order to improve or enlarge his estate, or for any other useful purpose. Here the decision is made by prudence, not by vice or folly; and there is room for very nice calculation. An improvement which might pay well, and enable the owner of the land to replace his money with a fair profit if he could raise the required amount by debentures, might be a rash speculation if he were forced to raise it by the expensive process of a mortgage with all its inconvenient consequences. Thus the present system, while it cannot restrain the extravagance of the prodigal, does impose a mischievous impediment upon the application of capital for useful purposes.

“ Although I disclaim any intention of putting the landlords of Ireland under tutelage, or of forcing them to be prudent by placing any restrictions on their lawful liberty, I may say that the system of debentures would be more likely than the present system of mortgages to awaken the prodigal to a sense of his folly. He will see his debentures melting away before his eyes, and when they are all gone, his landed credit will be so reduced that he must either discontinue his extravagance or sell his estate. The probable effect of the debenture system will be, that most men will be disinclined to lend money upon a mortgage *puisne* to the debentures. It will draw a marked line between good and bad securities, which at present approach each other by imperceptible degrees. The man who offers



a debenture presents a security which the Court has pronounced to be sufficient; the man who offers a mortgage puisne to the debentures, shows that he is about to encumber his estate beyond the value which the Court considered it safe to authorize, and he, therefore, offers a security which has already been condemned as unsatisfactory by the Court.

“ I shall, therefore, in the following remarks, assume as a proposition sufficiently proved, that it is expedient that the landed proprietor who is able to offer sufficient security should not, when he desires to borrow money, be put to unnecessary expense and trouble in order to make him more prudent. If the certainty of inevitable ruin will not deter a man from habitually exceeding his income, he will not be driven into prudence by the dread of his attorney’s bill of costs. The question still remains, will the proposed end be attained by the system of debentures? Will debentures sanctioned by the Landed Estates Court be received by the public without further inquiry, or will they be made the subject of an investigation as troublesome, as expensive, and as tedious, as that to which a mortgage is exposed on its first creation, and on every succeeding transfer. Now, in order to compare the two cases, let us examine what are the inquiries to be made by a capitalist when he is about to invest his money on a mortgage. He must—1st, examine the title of the mortgagor to make the mortgage; 2ndly, he must ascertain that the estate is not unduly depreciated by tenants’ leases at undervalue, or by prior incumbrances; 3rdly, if he is taking a transfer of an existing mortgage, he must examine the title of the mortgage, to make the transfer to him; 4thly, in this latter case he must also examine the state of accounts between the mortgagor and mortgagee, as if any payments have been made on account of the mortgage, the assignee will be bound by them; and 5thly, he must ascertain that the land pledged is of sufficient value.

“ Now, in the case of a debenture, the first four of those five points are settled without the necessity of inquiry or the possibility of a mistake. The debenture gives—1st, a parliamentary title to a charge upon the lands; 2ndly, unaffected by any prior charges or tenants’ leases, except those mentioned in the debentures; 3rdly, the title to the debenture is completed by the transfer of the debenture on the registry of the Court, just as the title to Government stock is made by a transfer in the books of the Bank of England; and 4thly, the assignee is not affected by any payments made to prior holders unless such payments are endorsed on the debenture itself.

“ There remains, therefore, no matter of inquiry except the value of the land, and therefore, in every possible view of the case, the inquiries made by the purchaser of a debenture will be simpler and cheaper than those made by the purchaser of a mortgage, since the former extend to one only of the five subjects which must be examined by the mortgagee. There is in effect only the value of the land to be considered, and this is not in practice found to be the chief source of delay or expense. Any one who has examined the bill of costs incurred on the assignment, or even on the first creation of a mortgage in Ireland, will not fail to see how small a part of the delay and trouble (which is in fact measured by the costs) has been

caused by an investigation of the value of the land. In the vast majority of cases the value of the land is taken upon repute, and in perhaps a few cases there may be an improved and unvouched rental; but scarcely in one case in a thousand is the mortgagee furnished with sufficient evidence to show that no tenant has a greater interest in the land than that which the rental discloses; and yet every debenture holder will have this conclusive evidence on the face of his debenture.

“It is not too much to say that the mere inspection of a debenture will give a greater knowledge of the value of the land than a mortgagee possesses in ordinary cases; and when it is considered that in addition to this the Landed Estates Court will have in each case approved of the security, it may fairly be expected that they will be accepted by the public without further inquiry. Even if this should not turn out to be the case, still the most rigorous investigation that can be required in the case of a debenture will be only a part, and that the smallest and least expensive part, of the investigation that must be made in the case of every mortgagee.

“After some time the credit of debentures in general must chiefly depend upon the results of experience. If the security turns out in fact to be always sufficient, the public will accept them without further inquiry; but if any notorious cases occur in which the money lent, or any part of it, is lost, in consequence of the deficiency of the security, the public will then generally make some slight examination before a debenture is accepted.

“I think that the former alternative is by far the more probable one, and that the examination made by the judges, and the large margin allowed, will almost preclude the possibility of any debenture failing to realize the required amount. But even if such an unlikely event should happen as that a debenture holder should incur a partial loss (for a total loss in any case is obviously out of the question), the effect would be, not a general discredit of debentures (as mortgages do not fall into general discredit notwithstanding a few cases of total failure), but only this, that before being purchased they will be subject to an examination far less tedious and expensive than ought to take place in every case of an ordinary mortgage.

“Perhaps some person may apprehend that frauds may be committed by an over issue of debentures, similar to what has been charged against certain corporations or improvement commissioners, and that this may lead to a depreciation of the security. It is not difficult to prove the impossibility of such an event. No land debenture can be issued without the sanction of a judge, who is free from the slightest motive to permit an over-issue, but is under the strongest inducement to prevent it. I shall proceed to show in how simple a manner the debentures may be registered and kept within the control of the Court, at the same time that fraud and forgery are made almost impossible.

“Let us suppose the case of a person purchasing an estate worth 2,000*l.* a year for 40,000*l.*, and wishing to get together with his conveyance twenty debentures for 1,000*l.* each. This issue of debentures is recited in the conveyance of his estate, which also describes the land conveyed, and gives a list of the tenantry with their



rents and the terms of their leases. This is, by the Act of Parliament, conclusive as against all the world. The debentures are then purchased, each debenture containing a copy of the conveyances. Each debenture is distinguished by a letter and number. The letter shows the book in which the counterfoil is to be found, and the number shows the position of the counterfoil in that book. The debentures in each estate are numbered in succession, say from B 21 to B 40, inclusive. The counterfoils follow in the order in Book B. Each counterfoil is of exactly the same shape and size as its corresponding debenture, and is a *fac simile* in every respect, except some slight difference to show that it is a copy and not an original. Every part of the counterfoil is made of the same skin of parchment as the corresponding part of the debenture. On every transfer of the debenture, the registrar makes an endorsement thereof on the debenture, and an exact copy of the same on the corresponding place on the counterfoil.

“The following process takes place when the purchaser of a debenture requires to have the transfer to himself registered in the books of the Court. He hands into the registrar his debenture, his deed of transfer, and an affidavit or declaration of the due execution of the transfer deed by the lawful owner of the debenture. The registrar then compares the debenture carefully with his counterfoil in his books; and if he finds that they correspond, and that the deed of transfer has been duly executed by the proper party, he makes an endorsement thereof on the debenture, and a corresponding endorsement in the same place on the counterfoil, and then returns the debenture to the new owner thereof. He then files the transfer-deed and affidavit, and sends a letter by post to the late owner of the debenture, to inform him that the transfer has been made. With such precautions it seems almost impossible that any attempt at fraud or forgery could meet with even a temporary success. The counterfoil in the possession of the Court, which the public is never permitted to see, is a perfect check not only to the forgery of a transfer, but also to the issue of a false or excessive debenture. The debenture in excess could never be transferred, since no counterfoil could be found to correspond with it. To make such a debenture would be the same absurdity as if a coiner were to make false money with the intention of hoarding it. The act would be without motive, and, moreover, it would not do any injury to any person.

“Several questions may be asked respecting the manner in which the owner may deal with an estate subject to debentures, either in his own hands or already issued to the public. One general answer will be, to some extent, applicable to all such questions. The first existence of a debenture, and its subsequent continuance, are entirely at the option of the owner of the land. When he buys an estate in the Court, he need not make his conveyance subject to any debenture, if he thinks that its existence would interfere injuriously with the management or disposal of his estate. Again, if subsequent events occur, which were not originally in his contemplation, but which make it probable that his powers of issuing debentures would be inconvenient, he may bring them into Court to have them cancelled, and then he will be in the same condition as if the act authorizing

the issue of debentures had never been passed. Thus, if a man is of opinion that the descent of his estate to his heir, together with the power of raising money by debentures, might entice him to prodigality, he may either cancel the debentures or put his estate in settlement.

“ One of the first questions naturally asked is, how is a man to act who has bought an estate with the power of issuing debentures, and who wishes to set or sell a part of it? With regard to the lease, there is obviously no difficulty, for as the debentures are only half the value of the land, they do not interfere with any lease which does not reduce the lessor's interest in the land to less than half its former value; a tenant obtaining such an interest is in fact a purchaser, and should examine the title like any other purchaser.

“ What then is the owner to do, who wants to sell a portion of his land? This resolves itself into two cases, according as he has already disposed of his debentures, or has them still in his possession. In the former case he is in the position of any other man who has incumbered his estate to the amount of half its value, and who therefore, of course, cannot make a perfect title to the purchaser. But he can make a far better title than if he had raised the same amount of money by a mortgage, for the debenture holders will not have possession of the title-deeds, nor any estate in the land, nor any right, except merely to recover the amount of the debentures by a sale. The purchaser protects himself in the same way as if he was buying a portion of an estate which had been encumbered by a previous mortgage. He takes an indemnity deed making the portion of the estate which is not sold bound to discharge all the debentures except such proportion as he undertakes to pay, and in respect of which he therefore gets an allowance out of his purchase money. Thus, suppose the entire estate is worth 40,000*l.*, and that the owner had raised 20,000*l.* by the issue of debentures, he wished to sell a part worth 4,000*l.*; he either covenants that the rest of the estate, which is worth 36,000*l.*, shall bear the entire charge of the debentures, in exoneration of the part which he sells, or that it shall bear a part only, say 18,000*l.*, and that the portion which he is selling shall bear the remaining 2,000*l.*, which therefore must be deducted from the purchase-money. I do not find by experience that an incumbrance, against which a sufficient indemnity is provided, operates with much prejudice to the price of an estate. It is true that an unwilling purchaser will rely upon a charge, in order to obtain a release from a contract with which he is discontented; but when it is made a condition of sale, I generally find that its existence has no perceptible influence upon the price. And that this is the result of general experience I infer from this circumstance, that the owners of estates subject to charges which cannot be paid off, or confined to particular portions, are anxious to sell them in small lots, with mutual cross indemnities, which do not prevent each lot from being liable to the whole charge in the last resort.

“ The second case is when the person who desires to sell a part of his estate has not issued any debentures. In this case he has two courses open, which he will adopt according to the value of the part of the estate which he is selling. If the value of the part which he



sells is very great in proportion to the value of the part which he retains, he will probably cancel all the debentures, and give the purchaser a perfect title. If he sells the entire of his estate, he will probably give the purchaser the option of having the debentures cancelled or transferred to him. If he sells only a small portion of the estate, he will assign to the purchaser's trustee some of the debentures upon trusts to be executed by the Court under the 11th section. Those trusts will be to indemnify the purchaser against all the debentures which affect the land.

“ The indemnity that can be given against a debenture is far more complete than any indemnity that can be given against a mortgage, and the purchaser has this advantage, that when the time for payment of a debenture comes, his estate will be relieved from the charge, as a renewed debenture affecting his land will not be granted by the Court without his consent. Thus if he buys land with an indemnity against debentures which fall due in the year 1870; when that year comes, the owner of the rest of the land must either pay off the debentures, or obtain a renewal of them on such terms as not to affect the land which he has sold. The advantage of this may be appreciated from the following fact. I know a case in which a gentleman in the last century purchased a portion of an estate subject to some charges. He obtained an indemnity on the rest of the estate which appeared of ample value. More than fifty years passed, during which neither the purchaser nor his assigns were called upon to pay one penny on foot of those charges. At the end of that period, the indemnity lands had been so wasted by bad management, covered with insolvent tenants, and the charges had so much increased by large arrears of interest and costs, that it became necessary to resort to the purchased lands, which were sold by the Court, and the produce of the sale was entirely devoured by the encumbrances. A similar catastrophe could not happen to the purchaser of land indemnified against debentures.

“ For the purpose of facilitating future dealings with his property, it will be prudent for the purchaser of land under the Court to take separate conveyances of separate portions, subject to separate debentures, rather than take one conveyance of all, subject to all the debentures. He should take care that the lands which are included in the same conveyance, and are subject to the same set of debentures, should lie within a ring fence, so that they would probably be afterwards sold or settled, or otherwise disposed of in the same manner. He can readily accomplish this by means of the Ordnance maps. If he afterwards finds it necessary to raise money by debentures, he ought in the first place to issue such as are charged upon such part of his property as he is least likely to desire to sell; and he ought to issue all the debentures charged upon one part before he issues any charged upon a second part of his estate.

“ Some will probably say, ‘ Why do you make the debentures payable only at certain periods? It would be frequently convenient for the owner of an estate to have the power of paying off the debentures when he liked, or of paying them off by gradual instalments if he preferred it.’ To this the obvious answer is, that as the debentures are all in equal priority, it is necessary that they should all be

made payable at the same time. The right of redeeming and of demanding payment ought to be reciprocal, and the utility of the power of charging by debentures would be much diminished if the owner of an estate was liable, at any moment, to have the amount of all the debentures levied from his estate. But it may be said, 'Give the owner of the land a right to pay the debt at any time, but do not give the owner of the debenture a right to demand payment until the appointed time.' This is possible. However, it is found that money is seldom borrowed on such terms on mortgages. I take the following passage from Lord St. Leonards' '*Handy Book on Property Law*,' p. 112:—

“‘In case you do not pay the interest regularly, the mortgagee may compel payment of the principal and interest. You will always be in danger of the mortgagee calling in the money, and thus putting you to the expense of obtaining money elsewhere to pay him off, and of making a transfer of the mortgage to the new lender. You should inquire whether the lender is likely to want his money, or is in the habit of changing his securities. To avoid this danger, it is sometimes stipulated that the lender shall not call in the money for a given number of years, provided the interest is regularly paid; but in that case the lender will probably require an obligation from the borrower not to pay the mortgage off within that period.’

“The terms of every loan are a matter for stipulation between the borrower and the lender, and if the former requires any terms for his own convenience, which may cause loss or inconvenience to the lender, he must surely pay for them by an increased rate of interest. The fixing of a time for payment, however, has not this effect, as it is mutually convenient to both parties.

“It is probable that the time fixed for the redemption of a debenture will generally be about twenty years from the day of its first issue by the Court, in cases when the purchaser has no immediate necessity to borrow money. However, when he is obliged to borrow part of the purchase-money of the estate, he will make his arrangements beforehand, and appoint such time for the redemption of the debenture as shall be mutually agreed upon between the borrower and the lender. When the owner of an estate and debentures wants to borrow money, which he may wish to repay within a shorter period, he will find no difficulty in obtaining it from a bank, on depositing his debentures with it.

“The rate of interest will depend on the wishes of the person whose estate is to be subject to the debenture. If he has made arrangements for a loan before the debenture is issued by the Court, the rate of interest will be settled according to agreement with the lender. In other cases it is probable that 5 per cent. will be the rate generally adopted. If a higher rate be adopted, the amount to be raised by debentures should be reduced, as all the interest must not exceed one-half the net income of the estate. If too low a rate be adopted, the owner might find it difficult to raise money on an emergency, except by selling his debentures for less than their nominal value. The rate of interest actually paid, will, however, seldom exceed  $4\frac{1}{2}$  per cent., on condition of punctual payment. An indorsement to this effect may be made on the debenture:—



‘Interest is reduced to 4 per cent., provided it is paid within a month after it falls due.’ When the funds are high, it is probable that the owner of an estate will be able to raise money by means of debentures at a lower rate than even 4 per cent.

“It has been suggested that the debentures should be made transferable by mere delivery, without any entry in the books of the Court. I think such a state of the law would be inconvenient. It would be very difficult to prevent forgery or over-issue of debentures. If the owner of an estate made a good imitation of a Court debenture, and passed it, and paid the interest regularly, the fraud would remain undetected until he sold the estate, or put it into settlement, when great confusion would arise, and great injustice be done. In many cases the estate would be found deficient, and debentures generally would fall into disrepute. Moreover, in case of robbery or theft the loss of a debenture would be irretrievable. For this reason it has been found by experience, that a permanent security for money transferable by mere delivery is not a safe or eligible kind of property. But on the system now proposed, as long as the owner keeps possession of his debenture, no fraud can be committed, and even if it should be stolen from him, the thief can only make use of it by a forgery which shall be successful in baffling all the precautions of the Court. The person who is robbed may effectually prevent this loss, and recover his debenture, by giving immediate notice of his loss to the registrar.

“It may be useful to give a short sketch of the proceedings likely to take place when the time fixed for payment of the debentures arrives. The owner of the land should, two or three months beforehand, enter into correspondence with the debenture holders, to ascertain whether they will require payment or accept a renewal of their debentures. If all are willing to accept renewals, they lodge their debentures in Court and get new ones instead. If, however, some holders require payment, then the owner of the estate must take steps to raise the money, or have parties ready to accept the new debentures, and pay the necessary sums to those who require payment of the old debentures. If the owner of the land has the means he may pay off as many of the debentures as he thinks proper, and retain them for his own use, to be issued if he should afterwards find it necessary or convenient. If the owner of the land finds himself in possession of money any considerable time before his own debentures fall due, he will probably deem it prudent to invest this money in the purchase of debentures falling due as nearly as possible at the same time as his own. Thus he will not lose any intermediate interest, and when the time arrives for redeeming his own debentures, he will have no difficulty in obtaining the required sum from his bankers on an assignment of the debentures which he had purchased, and a deposit of the debentures which he redeems, and which will be held by the bankers until the purchased debentures are paid off.

“Such are the steps that will usually be taken when the owner remains in possession of the entire estate. They will slightly vary according to circumstances, if he has sold any portion of it. He may have sold Blackacre to John Doe for 4,000*l.*, and assigned

2,000*l.* or 3,000*l.* of debentures to trustees as an indemnity. The judge inquires into the relative value of the lands, and decides that a certain sum—say 2,000*l.*—is the proportion which Blackacre ought to bear. The trust debentures to that amount are accordingly cancelled, and the owner of Blackacre gets a certificate that it is no longer liable to the old debentures. The residue of the trust debentures will be disposed of according to the provisions of the trust deed, and the owner of the estate will get a certificate under the seal of the Court that his estate is liable to 18,000*l.* instead of 20,000*l.*, and that no part of those debentures is chargeable on Blackacre. This certificate will state the particulars of the new debentures, and will form part of his title. No purchaser ought to buy an estate after the arrival of the time for payment of the debentures without examining the last certificate, which will tell him what new arrangement has been made.

“It may sometimes happen that the purchaser has not obtained any assignment of debentures as an indemnity, but has agreed to bear a certain sum—say 2,000*l.*—of the debentures; of course obtaining a reduction in his purchase-money to that amount. In this case it will be his duty (in order to prevent a sale of his estate) to procure persons to accept debentures to the amount of 2,000*l.*, to be charged on his estate alone, or else to pay off 2,000*l.* The unsold property will be made exclusively liable to 18,000*l.*, and certificates will be given to show the liabilities of each estate. In all cases the Court will decide the proportions to be borne by each estate, so that neither shall be charged with debentures beyond half its value. If this cannot be done consistently with the equities created by contract between the owners, then the owner of the estate, who has contracted to pay more than it can bear, must pay the difference. This occurs when the owner of an estate who has parted with all his debentures sells a portion of it, and stipulates that the part which he retains shall bear all the debentures. When the time for redemption comes he must pay in cash or raise by sale or mortgage so much as the amount of the debentures is in excess of half the value of the property which he retains.

“The short period of limitation for payment of the interest will have several good effects. It will facilitate dealing with a purchaser who will know that there is a very small limit to the utmost amount of interest that can be due on outstanding debentures. I have known cases in which the interest due on charges has been more than twice the amount of the principal, the arrears having been kept alive either by a pending suit, or a receiver at suit of a prior creditor or the possession of a prior creditor, or the effects of a trust term in preventing the operation of the Statute of Limitations. The short term of two years will lead to habits of punctuality. The readiness with which a debenture may be assigned will also lead to punctuality. I have known cases, in which the owner of good charges sustained great loss and inconvenience from non-payment, and who were reluctant to take proceedings against a friend or relative, and who would have found it utterly impossible to procure a stranger to take an assignment of their charges, as it would have been out of their power to show either the title or value of the land on which their



charges are secured. With debentures nothing of this kind can occur. If the interest is not punctually paid, it will quickly be assigned to some one who will be able and determined to enforce punctual payment.

“The books kept for the registry of debentures would probably not be numerous. It might be thought expedient not to give any debenture to a purchaser of land until his purchase deed was duly registered, and the memorial should state the number and value of the debentures. Thus, all parties dealing with the estate would be made aware of its liabilities. Each debenture would, by its endorsements, tell its own history. It would be convenient, however, that an account should be kept in the form of a ledger, with an index of names and a page opened for the account of each debenture holder. Every transfer would be entered to the credit of the person to whom, and the debit of the person by whom, it was made. It would be sufficient to describe the debenture in this account by its letter and number. This book should be kept strictly private. But when any information was required, in case, for instance, of the death, bankruptcy, or lunacy of any person, the Court would order a certificate to be given to show what debentures were standing in his name.”

The draft of an Act to authorize the issue of debentures chargeable on land in Ireland, will be found in the Appendix to the original paper.

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## II.—*American Trade in 1860-1-2.*

FROM the *Manchester Guardian*, 7th March, 1863.

“None of the consequences of the civil war in America concern this country more intimately than those which affect our great transatlantic trade. The war inflicts a double injury upon us. It deprives us of the raw material of our chief manufacturing industry, and it reduces the purchasing power of our greatest foreign customers. Its effect upon our commerce can be measured in its broader features by comparing the trade returns of two years of war with the year that preceded the secession of the South. The data which we have to offer relate to the import and export trades of the United Kingdom with the American States. The figures will for the most part express *quantities*; but where the returns fail in that respect, the *declared value* will be substituted.

“Let us take the exports first. The declared value of British and Irish produce and manufactures exported to America was for—

	£
1860 .....	21,667,065
'61 .....	9,064,504
'62 .....	14,398,801

“The exports of this class fell off more than *one-half* in the first year of the war; they recovered considerably in the second, being then but *one-third* less than in 1860; taking the ratios more exactly, 1861 was 58 per cent. and 1862, 34 per cent. lower than 1860. The business of the two last years together did not very much exceed that of the first. It will be serviceable to compare the relation of these values to the total exports of this branch of merchandise:—

	£	Exports to America.
1860 .....	135,891,227 .....	16·9 per cent.
'61 .....	125,102,814 .....	7·2 „
'62 .....	124,137,812 .....	11·6 „

“ Neglecting fractions, we can say, in regard to our home produce and manufactures, that America in 1860 took *one-sixth*; in 1861, *one-fourteenth*; and in 1862, *one-ninth* of the value.

“ When we analyse the tables as far as possible, we find that the exports fall into three classes (1), those that have *increased* since the war; (2) those that have *decreased*, but show a tendency to recover; (3) those that have *decreased* without any tendency to recover.

“ In the first class there are six articles, viz.:—

	1860.	1861.	1862.
Wool, British and foreign .....	2,841,200	10,039,947	11,623,226
Coals, &c. ....	309,869	371,882	321,459
Linen manufactures .....	59,988,394	21,169,077	65,642,017
„ thread.....	1,784,243	872,536	2,117,645
Lead.....	4,157	767	12,687
Woollen manufactures .....	127,834	74,727	185,909

“ The enormous increase in the wool shipped to the United States since the war is one of the most remarkable features in the returns issued from the Board of Trade. It must be observed, however, that 1860 was rather a low year. The exports in 1859 were 5,966,677 lbs., but this was double the quantity of 1857 and 1858. This large trade has not been attended with any diminution in that of woollen fabrics. There was, it is true, a large falling off in 1861; but the expansion of the following year brought that business for the two years up to the average of 1860. Linen manufactures and linen thread both suffered a great diminution in 1861, but both articles so far recovered themselves that last year they stood at a higher figure than that of 1860. Compared with that year the first named goods were in excess by 5,654,600 yards, and the second by 333,000 lbs. The export of lead, which in 1861 had fallen to about *one-fifth* of the average shipments, rose, in 1862 to *three times* the average of the peace period. How much of this was required for the destructive agents of war?

“ The second class comprises nine articles, namely :—

	1860.	1861.	1862.
Soda.....	1,080,398	431,380	1,046,164
Cotton manufactures.....	226,776,939	74,630,537	97,728,936
„ thread .....	2,090,734	879,478	1,443,089
Tin plates .....	£1,018,536	417,360	688,360
Oil seeds .....	662,751	15,438	114,680
British spirits .....	425,050	113,224	211,955
Carpets and druggets .....	2,806,546	968,799	1,607,179
Shawls, rugs, and coverlets.....	545,488	153,628	272,677
Earthenware and porcelain.....	£654,263	216,998	321,756

“ The characteristic of this class, as already indicated, is a violent fall in the first year of war, with marked signs of recovery in the second. In soda the recovery is decided. In cotton manufactures and thread the fall of 1861 is followed by a con-





and of wheat meal and flour in

	Cwt.
1860 .....	2,154,231
'61 .....	3,794,865
'62 .....	4,499,534

“ While the imports of American wheat greatly increased in the second, they were more than doubled in the third year of the term under review, accompanied by a nearly equal increase in the flour. Upon this branch of the American trade, Messrs. Horne and Watney remark that—

“ ‘ The cycle of high to low prices has been put out of gear by the overwhelming shipments from America; her Southern States not having drawn down their usual supplies; and France, since she made certain of a sufficient home growth, having retired from competition with ourselves in that market.’

“ A few remarks upon the trade with America in gold and silver must conclude our observations. If we place the imports and exports for each year on the same line, we shall perceive at a glance the most notable facts.

	Imports.	Exports.
	£	£
1860.....	4,792,582	1,727,220
'61.....	66,683	7,381,953
'62.....	10,064,162	37,528
	14,923,427	9,146,701

“ Nothing in trade can well be more extreme than the fluctuations of our monetary relations with America during this time. The balance of imports over exports in the precious metals is 5,776,726*l.* In 1860, the balance paid to *England* in gold and silver was 3,065,362*l.*; in 1861, paid to *America* was 7,315,270*l.*; and, in 1862, to *England*, 10,026,634*l.*; and this last sum, notwithstanding the large imports of grain—though, of course, the payment, in adjusting the various transactions of the two countries, was enormously swollen as against the United States by the stoppage of the cotton supply.”

### III.—*The New Statistical Abstract for France.\**

[Continued from p. 90.]

EXTRACTED from the *Economist* of March 7th and 21st, 1863, with a few abbreviations in the remarks :—

#### “ 2. Commerce.

“ In drawing an outline of the progress of trade in France during the period under notice (1847-61), it will be necessary to bear in mind two disturbing causes which happened within those years, viz., the revolution of 1848, and the commercial panic of 1857. Both of these events led to a considerable decline in trade, chiefly in the importations from abroad.

\* *Situation Economique et Commerciale de la France, 1847-61.* Paris, 1862.



“ The duration of the effects of the revolution of 1848 upon the import trade of the country may be traced over a period of six years, as below :

	Imports. £
1847 .....	51,000,000
'48 .....	28,000,000
'49 .....	40,000,000
'50 .....	44,000,000
'51 .....	43,000,000
'52 .....	55,000,000

“ The effects of the commercial panic of 1857 were not so lasting, extending over a period of three years only.  
“ Notwithstanding these checks, the trade of France made great progress between 1847 and 1861 ; as will be seen by the quinquennial averages for the imports and exports :—

Periods.	Annual Average.			
	Imports. (Mlns.)		Exports. (Mlns.)	
	Total.	For Home Consumption.	Total.	French Produce.
	£	£	£	£
1847-51 .....	41	29	49	36
'52-56 .....	78	56	84	61
'57-61 .....	103	75	112	81

“ These figures are exclusive of bullion and specie, which amounted in the same periods to :—

Periods.	Average Imports.	Average Exports.
	£	£
1847-51 .....	10,000,000	3,500,000
'52-56 .....	19,000,000	14,000,000
'57-61 .....	27,000,000	19,000,000

“ The large increase of trade in the last period was partly owing to the operation of the commercial treaties with England and Belgium during 1860 and 1861 ; but making allowance for the trade under these treaties, the commerce of France steadily increased under the old *régime* up to 1860.  
“ *Imports and Exports.*—The following table shows the chief countries with which France traded, in 1847, 1859, and 1861. The column for 1859 is introduced to show the extent of trade in the year preceding the conclusion of the commercial treaties with England and Belgium. The amounts are given in millions sterling :—

	VALUE OF IMPORTS.					
	1847.	1859.	1861.	Entered for Consumption.		
				1847.	1859.	1861.
				£	£	£
From United Kingdom	4.25	16.25	22.25	2.80	11.00	17.50
„ Russia .....	4.00	2.50	6.50	4.00	2.25	6.25
„ Zollverein .....	2.75	8.75	11.25	2.00	4.25	6.80
„ Belgium.....	6.00	8.00	11.00	4.50	6.50	8.90
„ Switzerland .....	4.00	10.50	8.00	1.00	2.00	2.25
„ Spain.....	2.00	3.00	3.50	1.50	2.25	2.80
„ Italy .....	5.50	6.75	8.00	4.50	5.20	7.00
„ Turkey .....	3.75	4.50	4.75	2.80	3.25	4.50
„ United States ....	5.50	8.75	15.75	4.50	8.00	14.50
„ French colonies...	4.25	5.75	7.75	3.25	5.20	7.25
Total .....	51.00	94.00	123.00	38.00	65.50	97.50

	VALUE OF EXPORTS.					
	1847.	1859.	1861.	French Produce.		
				1847.	1859.	1861.
				£	£	£
To United Kingdom ....	6.25	31.00	24.75	4.50	23.50	18.25
„ Russia .....	.80	1.50	2.25	.60	1.25	1.25
„ Zollverein .....	2.25	7.00	7.50	1.75	5.75	6.50
„ Belgium.....	2.50	7.50	6.75	2.00	6.75	6.25
„ Switzerland .....	3.75	11.00	10.50	1.25	4.50	5.50
„ Spain .....	2.50	5.50	8.00	2.00	4.00	5.25
„ Italy .....	3.75	10.00	11.50	2.25	7.25	7.25
„ Turkey .....	.80	2.50	2.25	.50	1.50	1.25
„ United States.....	7.50	17.50	4.50	4.50	12.25	3.25
„ French colonies.....	5.25	9.80	9.50	4.25	9.25	8.75
Total .....	42.00	122.25	106.50	28.75	90.50	77.00

“ Thus in 1847 Belgium stood first on the list, followed by Italy and the United States. In 1859 the United Kingdom occupied the first position both as regards general imports and entries for consumption. The United Kingdom also affords to France the largest market for the disposal of French produce, *taking about one-fourth of the total exports.*

“ Up to the year 1860 the imports consisted chiefly of raw materials and produce, manufactures of most kinds being either virtually or entirely prohibited. The value of raw silk imported in 1859 was  $8\frac{1}{2}$  millions sterling; of raw cotton, 6 millions; and of raw wool, 5 millions; these three articles are the most important in the list of imports.

“ The line of commercial policy pursued by the French Government best appears in the tariff changes made in past years. Between 1816 and 1859 the principal reductions of duty were made on colonial produce, skins, dyestuffs, chemicals, and raw products. The only exceptions, so far as British produce was concerned, were the reduction of the linen duties in 1836, which were raised again in 1845,—and the reduction of the duties in 1855 on pig and bar iron, steel, coal, and machinery.



The duties on the last named articles, however, although reduced, were in many cases prohibitive, and were of no benefit to English producers.

“As the *protective* character of the French tariff before the treaty with this country was concluded is not generally known, it may be as well to state that by it the yarns of Manchester and Leeds—the textile fabrics of Manchester, Glasgow, Leeds, Huddersfield, Bradford, Leicester, and Coventry—the stoneware of Staffordshire, London, and Newcastle—the glassware of Birmingham, Newcastle, and London—the hardware of Birmingham and Wolverhampton—the cutlery of Sheffield, and many other large branches of our trade, were entirely excluded from the French markets.

“The following are the principal articles of French produce exported from France in 1860:—

	£
Silk manufactures .....	18,000,000
Woollen „ .....	9,000,000
Wine .....	8,750,000
Grain .....	4,750,000
Ready-made linen .....	4,000,000
Tanned leather .....	1,750,000
Leather manufactures .....	3,500,000
Smallwares .....	3,750,000

“The value of silk manufactures forms about one-fifth of the total exports of French produce, and the silk industry in France occupies a corresponding position in that country to that of the cotton industry in England. Woollen manufactures and wine are the next in importance. The export of grain is very variable. The increase in the value of wine exported in the year 1860, as compared with the exports in 1847, was very large, being  $8\frac{3}{4}$  millions sterling against two millions.

“*Customs Duties.*—The revenue received from Customs duties in 1847, 1859, and 1861, was as follows:—

	On Imports.	On Exports.
	£	£
1847.....	5,459,000	81,000
'59.....	7,579,000	168,800
'61.....	5,069,000	64,500

“The articles which produced the largest proportion of duty in 1859 were sugar, coffee, raw cotton, and coal. The falling off in 1861 was partly due to the depression of trade during that year.

“*Port Trade.*—The amount of trade at each of the principal ports in the year 1861 was as under:—

	Per cent.
At Marseilles .....	16
„ Havre .....	12
„ Nantes .....	12
„ Paris .....	11
„ Bordeaux .....	8
„ Dunkirk .....	4
„ Rouen .....	2.5
„ Other ports .....	34.5
Total .....	100

“ *Transit Trade.*—The transit trade of France increased very largely between 1847 and 1860. In 1861 there was a decline caused by the falling off of the Swiss goods sent in transit to the United States. The value of merchandize exported from France in transit in each of the three years was :—

	£
In 1847 .....	7,000,000
„ '60 .....	24,000,000
„ '61 .....	19,000,000

“ *Temporary Importations.*—Besides the general imports, certain articles are admitted duty free for the purpose of being manufactured and exported. The value of these imports in 1861 amounted to *two millions sterling*, and the value of goods manufactured from materials imported temporarily duty free was *five and a-half millions.*”

### “ 3. Navigation.

“ With the view of fostering national shipping, by throwing the carrying-trade of the country into the hands of French ship owners, the French Government has from time to time fixed high deferential duties on goods imported from foreign countries under foreign flags, as well as on foreign ships themselves. At the same time the colonial and coasting trades of the country have been entirely reserved for national vessels.

“ The table published on page 83 of the document before us exhibits how signally this protective legislation has failed to accomplish the object for which it was enacted. The table gives the total mercantile tonnage *belonging* to France on the 31st December in each year from 1827 to 1861, which amounted

	Tons.
In 1827 to .....	692,000
„ '30 .....	689,000
„ '40 .....	662,000
„ '47 .....	670,000
„ '57 .....	1,052,000
„ '58 .....	1,049,000
„ '59 .....	1,025,000
„ '60 .....	996,000
„ '61 .....	983,000

“ Thus it appears that during the first twenty years the amount of tonnage belonging to the country remained stationary ; that between 1847 and 1857 it increased by 57 per cent. in the ten years, and that since that date it has gradually declined, on the average by about 2 per cent. per annum.

*The Statistics of the Tonnage of French Sailing and Steam Vessels on the 31st December, 1861, are shown by the following data :—*

		Tons.
Of 800 tons and above .....	31 .....	36,006
„ 700—800 .....	31 .....	22,835
„ 600—700 .....	48 .....	31,094
„ 500—600 .....	118 .....	64,328
„ 400—500 .....	243 .....	108,624
„ 300—400 .....	294 .....	103,408
„ 200—300 .....	654 .....	158,288
„ 100—200 .....	1,364 .....	193,152
„ 60—100 .....	1,640 .....	125,695
„ 30—60 .....	1,551 .....	66,008
„ 30 tons and under .....	9,091 .....	74,558
Total....	15,065	983,996



“ Small fishing boats employed on the coast are not included in the above return.

“ *Steam Tonnage*.—The number, tonnage, and horse-power of steam vessels belonging to France on the 31st December, 1861, was :—

Vessels .....	327
Tonnage .....	73,267
Horse-power .....	35,085

“ We must now pass to the statistics of shipping, which are divided into—1, the trade reserved to French vessels ; and 2, the trade open to foreign vessels.

“ 1. The trades reserved to French vessels are those with the colonies (except in some cases to Algeria), the coasting trade, and the fisheries. The progress of French shipping engaged in these trades during the last fifteen years was :—

*French Tonnage, with Cargoes, Entered or Cleared from, and to, French Colonies and Possessions.*

	Tons.
In 1847 .....	428,000
„ '61 .....	643,000

*From and to the Fisheries.*

	Tons.
With cargoes in 1847 .....	114,000
„ '61 .....	129,000

*In the Coasting Trade.*

	Tons.
With cargoes in 1847 .....	2,919,000
„ '61 .....	3,103,000

“ *Fisheries*.—The production of the whale fisheries exhibits a considerable decline of late years ; the quantity of oil and whalefins produced in 1847 and 1861 were :—

	Oil. Tonneaux Métriques.*
1847 .....	3,514
'61 .....	130
	Whalefins.
1847 .....	116
'61 .....	2

“ The quantity of cod fish exported from the fisheries and from French ports in 1847 was 16,108 tonneaux métriques, and in 1861, 13,395.

“ The coast fisheries in France on the 31st December, 1861, numbered 8,041 boats, of 59,541 tons and 39,898 men.

“ 2. *Foreign Trade*.—The following table shows the amount of tonnage of each nation trading with France in the years 1847 and 1861 :—

---

\* 2,200 lbs. avoirdupois, = a ton nearly.

Nationality of Vessels.	Total Tonnage Entered and Cleared at French Ports with Cargoes only.	
	1847.	1861.
British .....	989,397	2,159,399
Norwegian .....	217,833	271,686
Swedish .....	43,754	42,735
Danish .....	16,093	25,536
Russian .....	85,768	109,969
Prussian .....	55,258	95,720
Hanoverian and Oldenburg .....	14,333	10,882
Mecklenburg .....	17,648	14,170
Hanseatic .....	22,379	17,988
Dutch .....	46,410	86,679
Belgian .....	1,867	11,553
Spanish .....	99,098	224,647
Portuguese .....	4,752	10,882
Italian .....	413,823	557,700
Austrian .....	139,773	172,442
Greek .....	184,304	191,396
Turkish .....	30,678	15,688
Barbary States .....	156	—
American (U. S.) .....	317,978	577,807
Brazilian .....	1,152	6,053
Monte Videan .....	2,833	675
Chilian .....	1,530	600
Venezuelan .....	618	—
Mexican .....	—	920
Total foreign .....	2,707,457	4,605,127
French including the trade with the } colonies and fisheries .....	1,589,351	3,013,684
Total .....	4,296,808	7,618,811

“Thus we see that the French tonnage engaged in the foreign and colonial trades of the country only amounted to *thirty-seven per cent.* of the whole in 1847, and to *thirty-nine and a-half per cent.* in 1861; while in the United Kingdom, where foreign ships are admitted on equal terms with national vessels, the British tonnage enjoyed in 1861 *sixty per cent.* of the carrying trade of the country.”

#### IV.—*Fluctuations in the Value of Gold at New York.*

FROM the *Economist* of the 28th March, 1863 :—

“The following table shows the changes of the prices of commodities since last year :—



*Prices of Fifty-five Articles in the New York Market.*

	December 31, 1861.		December 31, 1862.		Rise per Cent.
	Dol.	ct.	Dol.	ct.	
Copper, American lake.... 100 lbs.	23	—	to 25	—	33
Coal ..... ton	4	50	„ 5	—	75
Iron, American pig.....	21	—	„ 23	—	44
Cordage, Manilla ..... 100 lbs.	9	—	„ 10	75	25
Lead, Galena .....	6	50	„ 6	75	30
Nails .....	3	25	„ 3	75	40
Ashes, pot .....	5	50	„ 5	75	25
Indigo .....	1	50	„ 2	—	15
Coffee, Brazils.....	20	50	„ 21	50	40
Cotton, mid. fair.....	29	—	„ 29	50	150
Dry cod .....	3	37	„ 4	25	20
Flour, Western .....	5	40	„ 5	60	25
India rubber .....	—	50	„ —	52	70
Gunny cloth ..... 100 yards	13	—	„ 13	50	12
Corn, Western ..... „ bshls.	58	50	„ 60	—	40
Hay .....	—	80	„ —	85	18
Wheat ..... bshl.	1	30	„ 1	45	15
Hemp, American, dressed, cut ....	10	50	„ 11	25	22
Barley..... bshl.	—	85	„ 1	—	60
Oats.....	—	37	„ —	39	72
Hides, Rio..... 100 lbs.	24	50	„ 25	—	12
Plaster of Paris .....	1	50	„ 1	75	80
Hops .....	14	—	„ 20	—	26
Clover seed .....	7	50	„ 7	75	34
Leather, oak, mid. ....	28	—	„ 30	—	17
Mahogany .....	35	—	„ 45	—	20
Lime ..... bbls.	—	60	„ —	65	40
Molasses ..... no. gals.	—	40	„ —	45	30
Turpentine, spirits .....	1	5	„ 1	7	150
Rosin .....	5	62	„ 5	75	140
Oil, whale .....	—	48	„ —	52	68
Oil, coal, ref .....	—	25	„ —	35	33
Silk, raw ..... lbs.	5	25	„ 6	—	50
Pork, mess .....	13	25	„ 13	75	10
Beef, „ .....	5	50	„ 8	—	28
Lard ..... 100 lbs.	7	50	„ 8	25	25
Cassia .....	35	—	„ 36	—	14
Whisky ..... 100 galls.	25	—	„ 25	50	70
Gin .....	33	—	„ 34	—	42
Sugar, Cuba ..... 100 lbs.	6	—	„ 6	75	33
Tallow, city.....	8	75	„ 9	—	27
Tin, Banca .....	30	—	„ 31	—	40
Spelter.....	5	50	„ 5	75	12
Tobacco, Kentucky .....	7	50	„ 20	—	60
Whalebone .....	68	—	„ 70	—	120
Wool, fleece .....	52	—	„ 55	—	20
„ pulled .....	44	—	„ 45	—	48
Cotton, shirting..... 100 yards	8	—	„ 10	—	220
„ sheetings .....	10	50	„ 14	—	120
„ drills .....	12	50	„ 14	50	110
Satinets .....	30	—	„ 60	—	58
Flannels .....	15	—	„ 30	—	90
Prints .....	8	—	„ 11	—	80
Cloths .....	5	—	„ 7	—	116
Duck, ravens .....	12	—	„ 12	50	50

“In the face of evidence such as this, it is idle to believe that the apparent depreciations of the currency as against gold is wholly owing to speculations in gold, or that it can be removed by prohibitory and penal enactments.”

#### V.—*Some Statistics of Cheap Literature.*

THE following remarks upon cheap periodical literature, by one of the originators of *Chambers's Edinburgh Journal*, will be read with interest as coming from a gentleman who is so eminently entitled to speak upon the subject as Mr. Chambers.

“Mr. William Chambers, of Glenmoriston, delivered a lecture on ‘Cheap Popular Literature and its Influence on Society,’ before the members of the Royal Society of Edinburgh. Lord Neaves was in the chair, and there was a large and distinguished attendance. Mr. Chambers began by noticing early printed literature, some of the earliest specimens of which were the antiquated and varied class of ‘chap books’ that were so much concerned in entertaining the firesides of our unfastidious ancestors—tracts which appealed to the popular love of the marvellous, the pathetic, and the humorous, and which, for the most part, were sold by chapmen or pedlars, who, with packs on their backs, traversed the whole country in quest of customers for their literary and other merchandise. Reprehensible in character as were the Scottish, and also many of the English chap books—miserable as they were in appearance and aim—they are to be taken as an exponent of popular intelligence and taste during the lengthened period in which they bore rule; and, as such, reflect a certain light on the social progress of Great Britain. Pervading town and country as a literature in request among all the humbler classes who could read, English and also Scottish chap books were extirpated by no edict, but disappeared slowly through the united effects of education, and a demand for something equally exhilarating and much more conformable to improved manners and feelings. Mr. Chambers then passed on to a review of the struggles of the cheap literature which superseded ‘chap books,’ and speaking of his own services said:—‘With the assistance of my brother, I commenced *Chambers's Edinburgh Journal* on the 4th February, 1832. Two months later, on the 31st March, the *Penny Magazine* was begun; and immediately afterwards many other publications of this cheap class, mostly commendable in plan, were brought out, and gained a deservedly large circulation. The year 1832, therefore, disturbed as it was by political agitation, mingled with apprehensions of the cholera, is, I think, entitled to be looked on as definitely marking the development of that new and peculiar cheap literature, now giving promise of adaptations never contemplated in the best times of eighteenth-century journalism. Every variety of literature, but more particularly popular periodicals and newspapers, have received an immense impetus from the removal of fiscal burdens and restrictions. The advertisement duty was abolished in 1853; the compulsory stamp on newspapers was removed in 1855; and the excise duty on paper was repealed in 1861. Since the reign of Queen Anne the press is now for the first time perfectly free—its freedom and power of circulation being further promoted by the system of penny postage, and the world-wide organisation of steam-boat and railway transit. One of the standing reproaches of past literature—a thing mourned over, and even joked over,—was the wretched remuneration of authors. To the credit of our own day, all lamentations and witticisms on this score have vanished into the realms of tradition. The central part of the nineteenth century, through the liberal encouragement offered by a popular wide-spread literature, has become the paradise of authorcraft. A narration of the sums now given by publishers of magazines and the lesser periodicals for attractive fictions would excite the most lively surprise—a very considerably higher



price being now, in innumerable cases, offered by the proprietor of a penny, three-halfpenny, or two-penny weekly sheet for the use of a story to be drawn out in portions over half a year, than was paid to Gibbon for his *Decline and Fall of the Roman Empire*, to Blair for his celebrated *Sermons*, or to Samuel Johnson for his laborious *Dictionary*. Newspapers, cheapened to a penny, have increased so enormously in their impressions, that I cannot venture on any statement respecting them further than this;—In 1830 the whole circulation of newspapers in England was 31,158,741 sheets, and that number is now said to be issued in London alone in the space of seventeen weeks. Two hundred millions of newspapers per annum would now be a moderate calculation for Great Britain! As regards merely literary sheets, I am able to speak somewhat more definitely. Collecting some statistics on this point in 1859-60, I found that, altogether apart from newspapers, the cheap periodical literature of Great Britain and Ireland might be summed up as follows:—Works of a strictly improving tendency, circulation per month, 8,043,500; works of an exciting nature, but not positively immoral, circulation per month, 1,500,000; works immoral, and opposed to the general religious belief of the country, circulation per month, under 80,000. My computation, founded on an attentive consideration of the subject, is, that in the United Kingdom there are not fewer than 12,000,000 of popular sheets, varying from 1*d.* to 2*d.* each, disposed of every month, or 144,000,000 per annum.’ Lord Neaves, remarking on Mr. Chambers’s paper, said that he thought the old ‘chap book’ indicated a vein of human nature that ought not to be neglected. The people of the days of the chap book were delighted by them, and Scotland, strange to say, a country where one saw the strictest and highest religion, was also a country where one had a signal proof of the variety of human nature. Boston’s *Fourfold State* and the chap book were generally to be found in the same cottage, if not on the same shelf; and while the old folk were reading the one, the young folk were reading the other. No literature would be popular and useful that did not look to the mirthful and humorous elements in human nature.”

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### VI.—Trade Circulars.

THE following letter has been issued by the Honorary Secretaries to a large number of firms, who, for the most part, have readily assisted in the object for which it is circulated, by furnishing the Society with periodical statements of the current prices of various descriptions of merchandize:—

“The Council of the Statistical Society is desirous of forming a collection of the Trade Circulars periodically issued by the principal houses connected with the commerce and manufactures of the United Kingdom and its dependencies—a collection which, as the Council believes, does not exist in any public institution. Should the Council succeed in their present attempt, the series of Trade Circulars deposited in the library of the Society will hereafter constitute an authentic and special history of the state and fluctuations of the commerce of the kingdom, which may be found of the greatest service in aiding the researches both of the statistician and the economist.

“We are directed by the Council, in furtherance of this useful object, to request you to assist in this undertaking, by forwarding to the Society, from time to time, the trade Reports circulated by your firm, from the commencement of the present year.

“All current reports transmitted to the Society will be placed before the fellows at their usual monthly meetings. The documents annually collected will be classified, bound up, and deposited in the library of the Society, where they will be accessible to the Fellows at all times; and to the public, on personal or written application to the officers of the Society.”

## MARRIAGES, BIRTHS, AND DEATHS IN GREAT BRITAIN.

## No. I.—ENGLAND AND WALES.

MARRIAGES IN THE QUARTER ENDED 31ST DECEMBER, 1862; AND  
BIRTHS AND DEATHS IN THE QUARTER ENDED  
31ST MARCH, 1863.

THE birth-rate was unusually well maintained last quarter; and it has been high during eight successive quarters. In respect to marriages, the general result is unfavourable: the returns now extend to the end of last year, and it is ascertained that during the whole of two years, 1861-2, the marriage-rate has been low. In the last quarterly report it was shown that the mortality was high; and the returns since obtained furnish equal evidence that in the first quarter of the present year the public health has not improved. The cold weather of November was fatal to many persons, and the effects of that month were probably not unfelt after the year had closed; and also causes that were proper to last quarter rendered it more unfavourable to health than many seasons that were less remarkable for their mildness.

MARRIAGES.—There were 48,659 marriages in the last quarter of 1862; a number nearly the same as that of the corresponding period in 1861, but less than in that of 1860, when it was 50,688. The circumstances that have operated to

ENGLAND :—MARRIAGES, BIRTHS, and DEATHS, *returned in the Years*  
1857-63, and in the QUARTERS of those Years.

*Calendar YEARS, 1857-63 :—Numbers.*

Years .....	'63.	'62.	'61.	'60.	'59.	'58.	'57.
Marriages No.	—	163,991	163,706	170,156	167,723	156,070	159,097
<i>Births</i> ..... „	—	711,691	695,406	684,048	689,881	655,481	663,071
<i>Deaths</i> ..... „	—	436,514	435,114	422,721	440,781	449,656	419,815

QUARTERS of each Calendar Year, 1857-63.

(I.) MARRIAGES :—*Numbers.*

<i>Qrs. ended</i> <i>last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	—	33,976	33,274	35,150	35,382	29,918	33,321
June ..... „	—	40,771	42,012	43,777	42,042	39,890	41,267
Septmbr. .... „	—	40,585	39,884	40,541	39,803	38,599	38,669
Decmbr. .... „	—	48,659	48,536	50,688	50,496	47,663	45,840



QUARTERS of each Calendar Year, 1857-63.

(II.) BIRTHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	186,653	182,005	172,933	183,180	175,532	170,959	170,430
June ..... ,,	—	185,638	184,820	174,028	175,864	169,115	170,444
Septmbr. .... ,,	—	172,237	172,033	164,121	168,394	157,445	161,181
Decmbr. .... ,,	—	171,811	166,620	162,719	170,091	157,962	161,016

(III.) DEATHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	128,524	122,192	121,215	122,617	121,580	125,819	108,665
June ..... ,,	—	107,555	107,558	110,869	105,631	107,142	100,046
Septmbr. .... ,,	—	92,225	101,232	86,312	104,216	98,142	100,528
Decmbr. .... ,,	—	114,542	105,109	102,923	109,354	118,553	110,576

depress marriages in England have not prevented an increase of them in certain parts. In the three March quarters of 1860-2, the marriages in London were respectively 7,265, 7,333, and 7,821.

In five of the eleven divisions, an increase of marriages is found in comparing those of the December quarter of 1862 with the mean of the two previous corresponding quarters. Those five divisions are London, North Midland counties, Wales, South-eastern Counties, and Northern Counties. The increase in the Northern Counties is hardly appreciable. In the remaining six divisions there is a decrease which varies from about 1 per cent. in the South Midland and Eastern Counties to 4 and 5 per cent. in the West Midland Counties and Yorkshire, and to no less than 15 per cent. in the North-western Division, in which the cotton manufacturing industry has been so long in a state of prostration.

Lancashire, exclusive of Ulverstone, consists of twenty-five districts; and in

ENGLAND:—Annual Rates per Cent. of PERSONS MARRIED, BIRTHS, and DEATHS, during the YEARS 1857-63, and the QUARTERS of those Years.

Calendar YEARS, 1857-63:—General Percentage Results.

YEARS .....	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
Estmtd. Popln. of England in thousands in middle of each Year....	20,554	—	20,337	20,119	19,903	19,687	19,471	19,257
Persons Married Perct.	—	1·670	1·612	1·628	1·710	1·704	1·604	1·652
Births .... ,,	—	3·427	3·500	3·461	3·437	3·504	3·366	3·443
Deaths .... ,,	—	2·211	2·146	2·163	2·124	2·239	2·309	2·180

## QUARTERS of each Calendar Year, 1857-63.

## (I.) PERSONS MARRIED :—Percentages.

<i>Qrs. ended last day of</i>	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	—	1'394	1'360	1'346	1'422	1'464	1'252	1'410
June..... „	—	1'693	1'610	1'678	1'766	1'716	1'646	1'722
Septmbr. „	—	1'607	1'582	1'570	1'614	1'602	1'570	1'592
Decmbr. „	—	1'975	1'890	1'906	2'012	2'026	1'934	1'880

## (II.) BIRTHS :—Percentages.

<i>Qrs. ended last day of</i>	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	3'698	3'594	3'644	3'500	3'707	3'631	3'576	3'604
June .... „	—	3'587	3'666	3'690	3'512	3'588	3'488	3'555
Septmbr. „	—	3'292	3'356	3'388	3'267	3'389	3'204	3'316
Decmbr. „	—	3'236	3'338	3'272	3'230	3'414	3'205	3'304

## (III.) DEATHS :—Percentages.

<i>Qrs. ended last day of</i>	'62.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	2'546	2'498	2'447	2'453	2'481	2'515	2'631	2'298
June..... „	—	2'191	2'124	2'147	2'237	2'155	2'210	2'087
Septmbr. „	—	1'982	1'797	1'994	1'718	2'097	1'997	2'068
Decmbr. „	—	2'178	2'226	2'064	2'043	2'195	2'406	2'269

fifteen of them there was a decrease of marriages in each of the December quarters of the last two years. The numbers in these districts were—

December Quarter.	1860.	1861.	1862.
Leigh .....	86	82	56
Bolton .....	344	318	249
Bury .....	244	223	150
Barton-upon-Irwell .....	116	105	55
Chorlton .....	166	149	101
Manchester .....	1,285	1,150	1,046
Ashton .....	342	271	235
Oldham .....	240	215	170
Rochdale .....	237	187	166
Haslingden .....	189	169	138
Burnley .....	229	202	131
Blackburn .....	412	281	181
Chorley .....	105	60	34
Preston .....	355	254	197
Lancaster .....	79	71	64



In Cheshire the marriages in the district of Stockport were 332, 218, and 198, in the three corresponding quarters.

In Blackburn the decrease of marriages in the quarter on those of two previous December quarters was equal to 48 per cent.; in the more extensive but less populous district of Chorley, the decrease exceeded that high proportion, and reached 59 per cent. In Burnley it was 39 per cent.; in Chorlton, Bury, Preston, about 36 per cent.; in Wigan and Leigh, 33 per cent.; in Stockport, 28 per cent.; in Bolton and Oldham, 25 per cent.; in Ashton and Haslingden, 23 per cent.; in Manchester it was only 14 per cent.

The annual marriage-rate in England (persons married to the population) in the quarter was 1·890 per cent. against an average of 1·975. In London it was 2·15; and in Lancashire it was 1·70 per cent.

**BIRTHS.**—The number of births in the quarter that ended 31st March, was 186,653. In the same period of 1861, it was about 173,000; in that of last year it was 182,000. The annual birth-rate of the quarter (births to population) was 3·698 per cent., being higher than the average, which is 3·594. It was higher than it had been in any quarter during the course of ten years, 1853-62, except the spring quarter of 1854, and the winter quarter of 1860.

If the last two winter quarters are compared in respect to births, it will be found that those of 1863 were more numerous than those of 1862, in all the eleven divisions, except that which is the seat of the cotton manufacture; unless the Northern Counties, where there was a trifling decrease, constitute another exception. Not only have marriages been comparatively few in Lancashire, but the removal of families from that county in quest of employment has been of sufficient importance to reduce the registration of births in the parts which they have forsaken.

**INCREASE OF POPULATION.**—The births of last quarter were in excess of the deaths in the same time by 58,129. The population would have received an accession amounting to 646 daily, if immigration and emigration had been equal to each other.

The total number of English, Scotch, Irish, and foreign emigrants who left ports where there are emigration officers, in the quarter ended 31st March, was 37,806.\* This emigration is superior in amount to that of any March quarter since 1854. The Australian colonies attracted an increased number of settlers; but the United States, to which 24,900 persons sailed, were the place of destination to a great majority. Upwards of 17,000 natives of Ireland went to the United States in the quarter.

The emigration to the United States was more than three times as great as it was in the same period of 1862.

The number of English emigrants to all parts was about 10,075.

**PRICES, THE WEATHER, AND PAUPERISM.**—Wheat was cheap. The average price was 46s. 7d. per quarter. In the corresponding period of 1861, it was 55s. 1d.; in that of last year it was 60s. 1d. Beef was near its usual price; the average, lowest, and highest prices of mutton at Leadenhall and Newgate, were 5d. and 7d. per lb. by the carcase. Potatoes were cheaper than they have recently been at this season, the best having been sold at the Waterside Market, Southwark, at about 125s. per ton.

Mr. Glaisher writes, that with the exception of eleven days in March, the weather at Greenwich was warm, and in the seventy-nine days the daily excess of temperature was on an average nearly five degrees. The period comprising December, January, and February was, as compared with corresponding periods, amongst the warmest on record. For those three months together there are only three instances of a higher mean temperature since 1771.

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\* From a Return with which the Registrar-General has been favoured by the Emigration Commissioners: the number returned as of English origin was 8,773, while the birthplace of 4,884 emigrants was not distinguished; in the above statement a proportional number of these has been added to those returned as of English origin.

The mean temperature of last quarter was  $42.6^{\circ}$ ; and as far as records that can be trusted extend, it has been exceeded in the same period of the year in only two instances.

In regard to the four months ending 31st March, the mean temperature may be considered to have been as high as any that has ever been experienced in a season extending through the same months.

In the quarter the humidity of the air was below the average in January and March, above it in February. The rainfall was rather above the average in January, below it in the subsequent two months. In the southern parts of England there was little rain at any time in the quarter; north of  $53^{\circ}$  latitude there was a great deal in January, but generally in February and March the weather was dry.

The returns of pauperism are expected to be heaviest in the first quarter of the year; but those obtained for that portion of the present year show an overgrowth, which much exceeds the product of an ordinary winter. In-door paupers were more last quarter than in the corresponding season of 1861, while they were nearly the same as in that of 1862; but the poor relieved out-door were far more numerous than in either, as the following statement of the average numbers relieved every Saturday will prove:—

First quarter, 1861 .....	In-door, 131,501 .....	Out-door, 758,441
„            ’62 .....	„    143,926 .....	„    804,272
„            ’63 .....	„    143,661 .....	„    948,212

DEATHS, AND THE STATE OF THE PUBLIC HEALTH.—A winter remarkably “mild” has also been remarkably unhealthy. The deaths in England in the three months that ended 31st March were 128,524, against 122,192 in the same period of last year, which supplies an example of average health in winter, and may be taken as a means of comparison. It will be an approximation to the truth, to state that people died in the quarter at the rate of 20,000 in a year, whose lives would have been saved if epidemics or atmospheric causes of a nature unfavourable to health had not been in greater force than usual. The rate of mortality was 2.546 per cent., the average being 2.498.

The mortality of small towns and rural districts was 2.343 per cent. (against an average of 2.287). That of the chief towns was 2.705 per cent. (against an average of 2.688). The country appears to have suffered from the effects of the winter more than the town.

In the south-eastern portion of England, the death-rate was lowest; in the north-western counties, Cheshire and Lancashire, it was highest, a distinction which the seat of the cotton manufacture has earned alike in its prosperity and adversity. But in comparing the returns of deaths in the eleven divisions, attention is immediately drawn to the fact, that in all the divisions, with one exception, the deaths were more numerous last quarter than in the March quarter of 1862; and the single exception is found in that division where the staple industry on which half a million of persons are dependent is overthrown, and for a twelve-month four-fifths of that number have subsisted, unless the pittance has been aided by previous earnings or sale of household stock, on less than 4*d.* a-day per head. Or if the deaths in last quarter are compared with the mean number of two corresponding quarters in 1861-62, the increase for England was nearly six per cent.; for London and the North Midland Counties, 2.5 per cent.; for the South-eastern and South Midland Counties, and Yorkshire, 7 per cent.; for the Eastern, South-western, and West Midland Counties, about 12 per cent., while for the North-western division the increase (0.3 per cent.) is hardly appreciable, and for Lancashire, which constitutes the most important part of it, is found an actual decrease of the mortality. If the sixteen most important cotton districts of Lancashire are taken, there was an increase of deaths in five, a decrease in the remaining eleven. The increase was greatest in Chorlton (16 per cent.) and Oldham (21 per cent.) The decrease was great in Wigan, Warrington, Leigh, and Bury, in which



places it was 17 and 18 per cent., greatest in Preston and Burnley, where it was 20 and 24 per cent. This is a brief statement of the facts, whatever may be the solution of the problem which it suggests.

**ANNUAL RATE of MORTALITY per Cent. in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1863-61.**

	Area in Statute Acres.	Population Enumerated.		Quarters ending	Annual Rate of Mortality per Cent. in each Quarter of the Years			
		1851.	1861.		1863.	Mean '53.62.	1862.	1861.
In 142 Districts, and 56 Sub-districts, comprising the <i>Chief Towns</i> .....	3,287,151	9,155,964	10,930,841	March	2.705	2.688	2.661	2.658
				June....	—	2.336	2.265	2.271
				Sept. ..	—	2.239	1.977	2.193
				Dec. ....	—	2.454	2.512	2.291
				Year ....	—	2.429	2.354	2.353
In the remaining Districts and Sub- districts of Eng- land and Wales, comprising chiefly <i>Small Towns</i> and <i>Country Parishes</i>	34,037,732	8,771,645	9,135,383	Year ....	—	1.970	1.894	1.938
				March	2.343	2.287	2.184	2.210
				June...	—	2.031	1.949	1.999
				Sept. ..	—	1.694	1.573	1.753
				Dec. ....	—	1.866	1.870	1.790

*Note.*—The three months January, February, March, contain 90, in leap year 91 days; the three months, April, May, June, 91 days; each of the last two quarters of the year 92 days. For this inequality a correction has been made in the calculations, also for the difference between 365 and 365.25 days, and 366 and 365.25 days in leap year.

It may be observed : 1. While England enjoyed at least its average amount of health in the two winter quarters of 1861-62, Lancashire was at those times more unhealthy than usual, and in the common fluctuations of epidemics and other disease more or less improvement of the public health was to be expected. 2. The emigration returns discover a remarkable increase of English emigrants since March, 1862; for whereas the number in each quarter of 1861 and till April 1862, was from 5,000 to 9,000, since that period it has been from 10,000 to 14,000. The Registrar of Witton (Blackburn) mentions that a great number of families had removed out of his sub-district from want of employment; and it is probable that the populations of other parts have been diminished, enough to affect the local registers, by similar movements to places in England and beyond the seas, where that market for labour may be found which has failed the industrious at their own homes. 3. It will be gratefully admitted that the legal provision for the distressed, and the spontaneous liberality of their countrymen, have hitherto sufficed to maintain the people in health. But if the supply has been enough, it has not been more than enough, and its inevitable tendency is to a fall; and though it could be sustained for an indefinite time, it does not follow that the health of a community living in forced inaction could also be indefinitely prolonged, while that which has been called "the real life" of the people must be ebbing fast. 4. The Registrar of Wigan reports, that not a single death had arisen in his district from the distress; and as other local officers are silent on the deaths of operatives from want, it must be assumed that happily they had none to report.

ENGLAND :—MARRIAGES *Registered in Quarters ended 31st December, 1862-60; and BIRTHS and DEATHS in Quarters ended 31st March, 1863-61.*

1	2	3	4	5	6
DIVISIONS. (England and Wales.)	AREA in Statute	POPULATION, 1861. (Persons.)	MARRIAGES in Quarters ended 31st December,		
			'62.	'61.	'60.
ENGLD. & WALES.... Totals	Acres. 37,324,883	No. 20,066,224	No. 48,659	No. 48,536	No. 50,688
I. London .....	77,997	2,803,989	7,821	7,333	7,265
II. South-Eastern .....	4,065,935	1,847,661	4,385	4,277	4,274
III. South Midland .....	3,201,290	1,295,497	3,097	3,005	3,233
IV. Eastern .....	3,214,099	1,142,580	3,026	2,978	3,147
V. South-Western .....	4,993,660	1,835,714	3,830	3,893	4,022
VI. West Midland .....	3,865,332	2,436,568	6,075	6,186	6,488
VII. North Midland .....	3,540,797	1,288,928	3,047	2,879	2,952
VIII. North-Western .....	2,000,227	2,935,540	6,374	7,087	7,969
IX. Yorkshire .....	3,634,636	2,015,541	5,145	5,171	5,621
X. Northern .....	3,492,322	1,151,372	2,764	2,777	2,737
XI. Monmthsh. & Wales	5,218,588	1,312,834	3,095	2,950	2,980

7	8	9	10	11	12	13
DIVISIONS. (England and Wales.)	BIRTHS in Quarters ended 31st March,			DEATHS in Quarters ended 31st March,		
	'63.	'62.	'61.	'63.	'62.	'61.
ENGLD. & WALES.... Totals	No. 186,653	No. 182,005	No. 172,933	No. 128,524	No. 122,192	No. 121,215
I. London .....	26,750	25,800	24,984	18,967	18,405	18,614
II. South-Eastern .....	16,260	15,385	14,920	10,112	9,533	9,423
III. South Midland .....	11,532	10,980	10,553	7,481	7,003	6,950
IV. Eastern .....	10,055	9,439	9,322	6,891	6,193	6,225
V. South-Western .....	16,037	15,345	14,796	11,149	9,692	9,957
VI. West Midland .....	23,725	22,761	22,157	16,507	14,884	14,520
VII. North Midland .....	11,679	11,347	10,893	7,354	7,075	7,278
VIII. North-Western .....	28,734	29,404	26,772	20,999	21,610	20,271
IX. Yorkshire .....	19,088	18,885	17,660	13,554	12,539	12,845
X. Northern .....	11,435	11,508	10,395	7,409	7,180	7,129
XI. Monmthsh. & Wales	11,358	11,151	10,481	8,101	8,078	8,003



## REMARKS ON THE WEATHER

DURING THE QUARTER ENDING 31ST MARCH, 1863.

*By JAMES GLAISHER, Esq., F.R.S., &c., Sec. of the British Meteorological Society.*

With the exception of the period between March 9th and 19th, when the daily temperature of the air was below the average to the amount of  $2\frac{1}{2}^{\circ}$  daily, the weather was warm throughout the quarter, averaging a daily excess of  $4\frac{3}{4}^{\circ}$  of temperature for the remaining 79 days. The temperature of the preceding month, viz., December, was in excess, and the mean temperature of the three winter months, viz., December, January, and February, was  $42^{\circ}\cdot 5$ , and is distinguished by being one of the warmest on record. In the preceding 92 years the warmest winter of all was that of 1795, its mean temperature was  $43^{\circ}\cdot 2$ ; this was closely approached in the years 1834 and 1846, in each of which this value was  $43^{\circ}\cdot 1$ ; and these are the only instances of a higher temperature since the year 1771. In the year 1848 the temperature for the same period was  $42^{\circ}\cdot 4$ , closely approximating to the present. The month of March this year was also warm, which was not the case in the year 1795.

The mean temperature of the months January, February, and March, this year, was  $42^{\circ}\cdot 6$ ; in the year 1834 it was  $42^{\circ}\cdot 9$ ; in 1846 it was  $43^{\circ}\cdot 6$ ; and these are the only instances, so far as trustworthy records extend, of an access over the temperature of the first three months of the present year.

The mean temperature of the four months ending March of this year, is  $42^{\circ}\cdot 9$ ; in the year 1846 it was  $43^{\circ}\cdot 1$ ; and in 1834 it was  $43^{\circ}\cdot 3$ ; so that the temperature we have lately had may be considered as high as has ever been experienced at this season of the year.

The mean temperature of January was  $41^{\circ}\cdot \frac{3}{4}$ , being higher than any January since 1853.

The mean temperature of February was  $42^{\circ}\cdot 1$ , being the same as in 1861; one degree lower than in 1859; but, with these exceptions, the highest since the year 1850.

The mean temperature of March was  $43^{\circ}\cdot 9$ , with the exception of 1859, when it was  $46^{\circ}\cdot 4$ , was the warmest since the year 1842.

*The mean high day temperature* was in excess to the amount of  $3^{\circ}\cdot 8$ ,  $4^{\circ}\cdot 6$ , and  $3^{\circ}\cdot 7$  respectively in these three months.

*The mean low night temperature* was in excess to the amount of  $3^{\circ}\cdot 2$ ,  $2^{\circ}\cdot 2$ , and  $0^{\circ}\cdot 2$  respectively in these months.

Therefore both the days and nights were warm in the months of January and February; in March the days were warm, and the nights differed but little from their average value.

*The mean temperature of the air* in January was  $5^{\circ}\cdot 2$ , in February was  $3^{\circ}\cdot 6$ , and in March  $2^{\circ}\cdot 6$  in excess over the average of 43 years.

The temperature of the dew point was 2°·4, 3°·2, and 0°·9 above the average in the months of January, February, and March respectively, as found from the observations of the preceding 22 years.

The degree of humidity was less than its average in January and March, and nearly of its average value in February.

The pressure of the atmosphere was in defect in January and March, and in excess in February.

The fall of rain in the extreme southern parts of England in January was somewhat in defect, was a little over its average about London, but north of 53° it was in excess, and very much so at northern stations.

All over the country the weather in February and March was remarkably fine and mild.

The mean temperature of the air at Greenwich in the three months ending February, constituting the three winter months, was 42°·5, being 4°·7 above the average of the preceding 91 years.

1863. Months.		Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
		Air.			Evaporation.		Dew Point.		Air— Daily Range.		Water of the Thames				
		Mean.	Diff. from Aver- age of 92 Years.	Diff. from Aver- age of 22 Years.	Mean.	Diff. from Aver- age of 22 Years.	Mean.	Diff. from Aver- age of 22 Years.	Mean.	Diff. from Aver- age of 22 Years.					
Jan. ....	41·8	+5·8	+3·7	39·9	+3·0	37·6	+2·4	10·3	+0·6	41·5	·225	+·022	2·6	+0·2	
Feb. ....	42·1	+3·9	+3·4	40·2	+3·1	37·9	+3·2	13·8	+2·4	43·0	·228	+·025	2·6	+0·2	
March ...	43·9	+3·0	+2·0	41·0	+1·1	37·6	+0·9	18·0	+3·5	45·1	·225	+·006	2·6	+0·1	
Mean.....	42·6	+4·2	+3·0	40·3	+2·4	37·7	+2·2	14·0	+2·2	43·2	·226	+·016	2·6	+0·2	

1863. Months.		Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horiz- ontal Move- ment of the Air.	Reading of Thermometer on Grass.				
		Mean.	Diff. from Aver- age of 22 Years.	Mean.	Diff. from Aver- age of 22 Years.	Mean.	Diff. from Aver- age of 22 Years.	Amnt.	Diff. from Aver- age of 46 Years.		Number of Nights it was			Low- est Read- ing at Night.	High- est Read- ing at Night.
											At or below 30°.	Be- tween 30° and 40°.	Above 40°.		
Jan. ....	85	— 4	In. 29·619	In. —147	Gr. 547	Gr. — 7	In. 2·6	In. +0·8	Miles. 357	10	19	2	23·3	43·8	
Feb. ....	86	+ 1	30·141	+·353	557	+ 4	0·6	—1·0	254	12	14	2	19·5	44·7	
March ..	78	— 5	29·715	—·056	547	— 2	0·7	—0·8	237	16	14	1	22·5	42·4	
Mean.....	83	— 3	29·825	+·050	550	— 2	Sum 3·9	Sum —1·0	Mean 283	Sum 38	Sum 47	Sum 5	Lowest 19·5	Highest 44·7	

Note.—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.



ENGLAND:—*Meteorological Table, Quarter ended 31st March, 1863.*

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Range of Tem- perature in the Quarter.	Mean Monthly Range of Tem- perature.	Mean Daily Range of Tem- perature.	Mean Tem- perature of the Air.	Mean Degree of Hu- midity.
	in.	°	°	°	°	°	°	
Guernsey .....	29·807	56·0	34·0	22·0	19·3	7·2	44·9	88
Exeter .....	29·808	56·9	27·3	29·6	26·9	10·4	44·0	80
Ventnor .....	29·800	59·0	34·0	25·0	20·3	8·1	45·0	78
Barnstaple .....	29·764	61·5	28·0	33·5	29·0	14·6	44·3	86
Royal Observatory	29·764	64·0	27·2	36·8	30·6	14·1	42·6	83
Royston .....	29·729	63·4	25·5	37·9	30·7	12·8	41·9	85
Lampeter .....	29·748	62·8	21·4	41·4	33·6	12·9	42·5	89
Norwich .....	29·740	64·0	27·0	37·0	29·0	12·0	42·7	83
Belvoir Castle ...	29·716	62·0	25·0	37·0	30·6	11·7	41·2	84
Liverpool .....	29·700	61·4	31·9	29·5	23·5	7·9	43·9	79
Wakefield .....	29·695	63·7	20·2	43·5	34·6	13·8	42·2	85
Leeds .....	29·693	62·0	24·0	38·0	30·0	11·0	40·7	82
Stonyhurst .....	—	—	25·0	—	—	—	—	—
York .....	29·689	60·0	25·5	34·5	28·8	10·9	41·7	88
Scarborough .....	29·686	57·0	28·0	29·0	24·3	8·8	42·2	90
North Shields ...	29·686	60·0	25·8	34·2	27·4	9·5	41·3	86

10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					Mean Amount of Cloud.	RAIN.	
	Mean estimated Strength.	Relative Proportion of					Number of Days on which it fell.	Amount collected.
		N.	E.	S.	W.			
								in.
Guernsey .....	1·6	7	5	8	10	4·5	45	8·6
Exeter .....	1·1	7	5	7	11	6·3	60	6·1
Ventnor .....	—	6	4	8	11	—	34	6·2
Barnstaple .....	1·5	9	5	6	10	4·2	53	7·5
Royal Observatory	—	5	5	9	10	7·4	34	3·9
Royston .....	—	6	3	9	12	5·6	58	4·0
Lampeter .....	0·8	6	5	9	10	6·7	50	9·6
Norwich .....	1·4	4	3	11	12	6·3	28	3·6
Belvoir Castle ...	1·7	4	2	11	13	7·9	35	3·4
Liverpool .....	1·5	3	3	10	12	7·1	45	4·0
Wakefield .....	1·9	5	6	8	12	7·6	47	6·1
Leeds .....	1·7	4	4	11	11	7·0	29	6·2
Stonyhurst .....	1·0	5	4	6	14	7·6	63	11·3
York .....	—	5	3	8	15	—	40	4·4
Scarborough .....	2·0	5	3	6	16	—	27	3·6
North Shields ...	2·1	6	3	8	13	5·6	46	4·9

## No. II.—SCOTLAND.

MARRIAGES, BIRTHS, AND DEATHS IN THE QUARTER  
ENDED 31ST MARCH, 1863.

**BIRTHS.**—27,729 births were registered in Scotland during the quarter ended 31st March, 1863. This gives the annual proportion, 345 births in every 10,000 persons of the estimated population, or 1 birth in every 28 persons; being the exact mean birth-rate that has prevailed in Scotland during the first quarter of the seven previous years.

13,842 of the children were males, and 12,887 females; thus indicating a proportion of 107·4 males for every 100 females at birth.

The usual difference in the proportion of the births was observed in the town and in the country districts; by a wise law of nature, to prevent the extirpation of the human race, the births being in a higher ratio wherever the general mortality is greater. Thus, in the 126 town districts of Scotland (which embraces almost all the towns with a population of 2,000 inhabitants and upwards), 15,219 births were registered; while in the 883 country districts (embracing the remainder of the population of Scotland) 11,510 births occurred; thus indicating an annual proportion of 372 births to every 10,000 persons living in the town districts; but only 315 births in a like number of persons in the country districts.

Of the 26,729 births, 24,004 were legitimate, and 2,725 illegitimate, being in the proportion of one illegitimate in every 9·8 births, or 10·1 per cent. of the births illegitimate. The exceptional character of Scotland relative to this form of vice is again shown by the fact, that while only 9·7 per cent. of the births were illegitimate in the town districts, 10·7 per cent. were illegitimate in the country districts.

**DEATHS.**—19,227 deaths were registered in Scotland during the first quarter of 1863, being in the annual proportion of 248 deaths in every 10,000 persons of the estimated population. The mean death-rate of the first quarter, during the eight previous years, was 236 deaths in every 10,000 persons, so that the mortality has been unusually high during the past quarter.

The deaths in the town districts greatly exceeded those in the country. Thus, in the 126 town districts, 11,678 deaths were registered; while in 883 country districts the deaths only numbered 7,549. This indicates an annual proportion for the quarter of 285 deaths in every 10,000 persons living in the town districts, but only 206 deaths, in a like population, in the country districts.

Of the deaths, 6,377 were registered during January, 6,161 during February, and 6,689 during March; thus indicating 206 deaths daily during January, 220 daily during February, and 216 daily during March.

**INCREASE OF POPULATION.**—The births numbering 26,729, and the deaths 19,227, the increase of the births over deaths amounted to 7,502 persons, and by that number the population would have increased had there been no emigration. From a return, however, furnished to the Registrar-General by the Emigration Commissioners, it appears that 37,806 persons emigrated from the ports of Great Britain and Ireland, during the first quarter of 1863, of whom 1,841 were ascertained to be of Scottish origin. If to that number 273 be added, as the proportion of persons whose origin was not ascertained, the total number of Scottish emigrants would amount to 214, which, deducted from the increase of births over deaths, leaves only 5,388 as the increase of the population during the quarter.

**MARRIAGES.**—5,090 marriages were registered in Scotland during the first quarter, being in the annual proportion of 65 marriages in every 10,000 persons of the estimated population; a proportion higher than the mean of the corresponding quarter during the eight previous years, which was only at the rate of 60 marriages annually in every 10,000 persons. We must not be too hasty in drawing conclusions from this fact as to the general prosperity of trade, and the full employment



of the working classes, which an increase in the number of marriages generally indicates, because it must be remembered that the number of marriages during the fourth quarter of 1862 was very far below the usual amount, and the increase during the past quarter does not even balance the decrease of the previous quarter.

As usual, the proportion of marriages in the town districts greatly exceeded those in the country. Thus, in the 126 town districts, 3,135 marriages were registered, while in the 883 rural districts only 1,955 marriages were registered, thus indicating an annual proportion of 76 marriages in every 10,000 persons in the town districts, but only 53 marriages in every 10,000 persons in the rural districts.

Of the marriages, 2,503 were registered during January, 1,336 during February, and 1,251 during March.

**HEALTH OF THE POPULATION.**—The health of the population has not been good during the past quarter; much sickness has prevailed, the recoveries have been slow, and the deaths numerous. The long continued wet weather during the previous year, the great humidity of the atmosphere, and the want of the usual dry, bracing, frosty weather, no doubt contributed to weaken the constitutions of the people, and render them more liable to attacks of disease, and to sink under it when attacked. Hence it happened that, during the past quarter, the increased mortality was not attributable to the prevalence of any particular epidemic, but rather to the greater general increase of all complaints, and to the greater fatality of all.

Measles was the leading epidemic among children, and appeared to prevail equally over the whole country, but fortunately in a mild form. Typhus fever, in its varied forms, was very prevalent, but not apparently concentrated in any particular town or district. Diphtheria was unusually prevalent, and contributed largely to swell the number of deaths. In some districts, where it assumed the epidemic form, nearly all the deaths were caused by it. Affections of the throat were unusually prevalent over Scotland during the whole quarter. Scarlet fever appeared in a few districts; and the very malignant form which prevailed in the town of Kincardine, in Perthshire, was, perhaps with justice, considered to be associated with the defective drainage of the town. Small-pox broke out in several localities, being introduced by strangers travelling with the disease on them. The registrar of Dunbar mentions a remarkable fact relative to the infectious nature of this disease and its introduction into that district. A person died of small-pox in Edinburgh, and his clothes were sent to Dunbar to be washed. The person who washed the clothes first took small-pox, when it spread from her to numerous others in that district. As showing the value of vaccination in protecting from a fatal result, it may be mentioned that several of the Registrars remark that the small-pox deaths were confined to those who had never been vaccinated. Influenza and bronchitic affections were common over the country during the quarter.

**WEATHER.**—During the first quarter of 1863, it can scarcely be said that there was any truly wintry weather. Frosts and snows were almost unknown; the weather was unusually mild; the mean temperature was higher than the average; the fall of rain during January was much greater than usual, and attended with strong, damp, south-westerly winds. The air was more than usually humid during both January and February; and it was not till March that the humidity of the atmosphere fell to its normal condition, and that the quantity of rain showed a material tendency to diminish. The lowest mean temperature in Scotland generally occurs during January or February, but during the past twelve months the lowest mean temperature occurred during November; and the mean temperature of January was  $1^{\circ}4$ , and that of February  $4^{\circ}1$  above that of November. This damp mild weather, following the two damp rainy years just closed, apparently acted prejudicially on the health of the population, so that, even under a rising temperature, the mortality during February was greater than during January—a most unusual occurrence—for the daily deaths during January, with its lower temperature, was only 206; but the daily deaths during February, with its higher temperature, were 220. The setting in of the noxious easterly winds during March kept the deaths during that month at the high average of 216 daily.

SCOTLAND:—MARRIAGES, BIRTHS, and DEATHS *Registered in the Quarter ended 31st March, 1863.*

1	2	2	4	5	6
DIVISIONS. (Scotland,)	AREA in Statute	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
	Acres.	No.	No.	No.	No.
SCOTLAND.....Totals	19,639,377	3,062,294	5,090	26,729	19,227
I. Northern .....	2,261,622	130,422	216	764	541
II. North-Western .....	4,739,876	167,329	291	1,139	898
III. North-Eastern .....	2,429,594	366,783	461	3,108	2,005
IV. East Midland .....	2,790,492	523,822	850	4,153	3,092
V. West Midland .....	2,693,176	242,507	344	2,003	1,456
VI. South-Western .....	1,462,397	1,008,253	2,031	10,264	7,391
VII. South-Eastern .....	1,192,524	408,962	674	3,619	2,597
VIII. Southern .....	2,069,696	214,216	223	1,679	1,247

No. III.—GREAT BRITAIN.

SUMMARY of MARRIAGES, *in the Quarter ended 31st December, 1862; and*  
BIRTHS, and DEATHS, *in the Quarter ended 31st March, 1863.*

COUNTRIES.	AREA in Statute	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
	Acres.	No.	No.	No.	No.
England and Wales.....	37,324,883	20,066,224	48,659	186,653	128,524
Scotland .....	19,639,377	3,062,294	6,066	26,729	19,227
GREAT BRITAIN .....	56,964,260	23,128,518	54,725	213,382	147,751



Trade of United Kingdom, 1862-61-60.—*Distribution of Exports from United Kingdom, according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.*

Merchandise ( <i>excluding Gold and Silver</i> ), Imported from, and Exported to, the following Foreign Countries, &c. (The unit 000's are omitted.)	Whole Years.					
	1862.		1861.		1860.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
<b>I.—FOREIGN COUNTRIES:</b>	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	21,121,	4,124,	18,649,	5,057,	23,118,	5,042,
Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium	27,921,	20,536,	24,663,	21,303,	27,889,	21,217,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries).....	28,096,	14,912,	24,979,	15,126,	24,244,	10,879,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	5,045,	6,879,	4,872,	7,896,	4,887,	6,902,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	17,251,	6,661,	13,247,	6,306,	15,908,	7,716,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco .....	489,	204,	544,	171,	296,	219,
Western Africa .....	1,720,	939,	1,515,	878,	1,801,	967,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands .....	—	74,	6,	39,	54,	81,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands .....	1,041,	1,248,	1,183,	1,918,	1,151,	2,122,
South Sea Islands .....	—	—	—	115,	—	34,
China, including Hong Kong .....	12,749,	3,190,	9,610,	4,891,	9,491,	5,319,
United States of America .....	27,693,	14,399,	49,385,	9,058,	44,728,	21,614,
Mexico and Central America .....	1,112,	925,	662,	756,	715,	645,
Foreign West Indies and Hayti .....	4,591,	3,148,	4,900,	2,472,	3,578,	2,670,
South America (Northern), New Granada, Venezuela, and Ecuador	916,	1,008,	539,	1,405,	687,	1,209,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia.....	5,602,	1,707,	5,718,	2,561,	5,373,	3,086,
„ (Atlantic) Brazil, Uruguay, and Buenos Ayres.....	6,540,	5,073,	4,741,	6,525,	4,238,	7,149,
Whale Fisheries; Grnld., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	123,	10,	135,	10,	153,	6,
<i>Total.—Foreign Countries .....</i>	162,010,	85,037,	165,348,	86,487,	168,311,	96,877,
<b>II.—BRITISH POSSESSIONS:</b>						
British India, Ceylon, and Singapore .....	39,014,	16,282,	26,155,	17,925,	18,467,	19,310,
Austral. Cols.—New South Wales and Victoria	4,950,	9,218,	4,945,	8,265,	4,698,	7,808,
„ „ So. Aus., W. Aus., Tasm., and N. Zea. ....	2,160,	2,712,	1,956,	2,437,	1,772,	1,899,
British North America.....	8,499,	3,993,	8,664,	3,697,	6,826,	3,738,
„ W. Indies with Btsh. Guiana & Honduras	6,584,	3,187,	6,106,	2,665,	6,304,	2,557,
Cape and Natal.....	1,517,	1,922,	1,422,	1,987,	1,714,	2,064,
Br. W. Co. of Af., Ascension and St. Helena	237,	411,	202,	434,	175,	395,
Mauritius .....	968,	521,	1,914,	552,	1,684,	539,
Channel Islands .....	653,	854,	639,	666,	697,	656,
<i>Total.—British Possessions.....</i>	64,582,	39,100,	52,003,	38,628,	42,337,	38,966,
<i>General Total.....£</i>	226,592,	124,137,	217,351,	125,115,	210,648,	135,843,

IMPORTS.—(United Kingdom.)—Whole Years, 1862-61-60-59-8.—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandize Imported into the United Kingdom.*

(Whole Years.)		(000's omitted.)	1862.	1861.	1860.	1859.	1858.
FOREIGN ARTICLES IMPORTED.							
			£	£	£	£	£
RAW MATLS.— <i>Textile.</i>	Cotton Wool ....	31,093,	38,653,	35,757,	34,568,	30,107,	
	Wool (Sheep's)..	12,109,	9,719,	11,031,	9,831,	8,972,	
	Silk .....	15,897,	7,907,	10,324,	10,596,	6,111,	
	Flax .....	5,206,	3,423,	3,837,	3,769,	3,021,	
	Hemp .....	2,645,	1,894,	1,865,	2,363,	1,873,	
	Indigo .....	2,446,	2,977,	2,529,	1,929,	2,292,	
			69,396,	64,573,	65,343,	63,056,	52,376,
,, ,, <i>Various.</i>	Hides .....	3,188,	2,892,	3,296,	3,373,	2,480,	
	Oils .....	3,951,	3,576,	3,923,	3,654,	3,636,	
	Metals .....	4,604,	3,752,	4,228,	3,887,	3,710,	
	Tallow .....	2,508,	3,312,	4,014,	2,933,	3,042,	
	Timber.....	9,293,	9,931,	9,206,	8,163,	5,964,	
			23,544,	23,463,	24,667,	22,010,	18,832,
,, ,, <i>Agrcltl.</i>	Guano .....	1,635,	2,022,	1,563,	769,	4,084,	
	Seeds .....	3,211,	3,108,	3,392,	3,042,	2,710,	
			4,846,	5,130,	4,955,	3,811,	6,794,
TROPICAL, & C., PRODUCE.	Tea .....	9,176,	6,851,	6,944,	5,813,	5,207,	
	Coffee .....	3,303,	2,629,	2,543,	1,956,	1,742,	
	Sugar & Molasses	12,019,	13,252,	12,811,	12,539,	13,468,	
	Tobacco .....	2,351,	2,195,	1,778,	1,817,	2,531,	
	Rice .....	2,400,	2,127,	1,023,	805,	1,653,	
	Fruits .....	1,228,	1,470,	1,254,	1,599,	1,290,	
	Wine .....	3,649,	3,863,	4,202,	2,781,	2,041,	
	Spirits .....	1,692,	1,734,	1,919,	2,228,	1,250,	
			35,818,	34,121,	32,474,	29,538,	29,182,
FOOD .....	Grain and Meal..	37,748,	34,750,	31,432,	17,894,	19,993,	
	Provisions .....	8,564,	7,780,	6,546,	3,372,	3,139,	
			46,312,	42,530,	37,978,	21,266,	23,132,
Remainder of Enumerated Articles .....			4,213,	3,869,	3,714,	3,379,	3,023,
TOTAL ENUMERATED IMPORTS....			184,129,	173,687,	169,131,	143,060,	133,339,
Add for UNENUMERATED IMPORTS (say)			46,032,	43,422,	42,283,	35,765,	33,335,
TOTAL IMPORTS.....			230,161,	217,109,	211,414,	178,825,	166,674,



IMPORTS.—(United Kingdom.)—First Two Months (*January — February*), 1863-62-61-60-59.—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

(First Two Months.) FOREIGN ARTICLES IMPORTED.		(000's omitted.)	1863.	1862.	1861.	1860.	1859.
			£	£	£	£	£
RAW MATLS.— <i>Textile.</i>	Cotton Wool ....		3,532,	1,206,	3,979,	5,338,	3,952,
	Wool (Sheep's)..		578,	510,	392,	660,	418,
	Silk .....		2,190,	2,034,	1,181,	1,385,	2,313,
	Flax .....		387,	366,	198,	297,	243,
	Hemp .....		110,	60,	54,	58,	72,
	Indigo .....		223,	179,	66,	93,	76,
			7,020,	4,355,	5,870,	7,831,	7,074,
	„ <i>Various.</i> Hides .....		162,	182,	124,	299,	140,
	Oils .....		378,	339,	170,	363,	306,
	Metals .....		411,	525,	260,	349,	287,
„ <i>Agretil.</i>	Tallow .....		77,	145,	130,	134,	86,
	Timber.....		556,	498,	526,	363,	275,
			1,584,	1,689,	1,210,	1,508,	1,094,
	Guano .....		141,	54,	151,	134,	88,
	Seeds .....		233,	242,	288,	317,	326,
			374,	296,	379,	451,	414,
	TROPICAL, & C., PRODUCE. Tea ...		2,120,	1,639,	1,110,	1,158,	476,
	Coffee .....		350,	284,	172,	188,	118,
	Sugar & Molasses		1,357,	1,153,	1,304,	1,111,	1,097,
	Tobacco .....		314,	154,	179,	43,	67,
FOOD .....	Rice .....		100,	46,	128,	87,	24,
	Fruits .....		40,	82,	173,	100,	80,
	Wine .....		595,	448,	544,	391,	242,
	Spirits .....		345,	241,	186,	215,	168,
			5,221,	4,047,	3,796,	3,293,	2,272,
	Grain and Meal..		3,957,	5,274,	6,172,	1,709,	1,993,
	Provisions .....		565,	658,	508,	649,	352,
			4,522,	5,932,	6,680,	2,358,	2,345,
	Remainder of Enumerated Articles .....		512,	408,	311,	431,	308,
	TOTAL ENUMERATED IMPORTS....		19,233,	16,727,	18,246,	15,872,	13,507,
Add for UNENUMERATED IMPORTS (say)			4,808,	4,182,	4,561,	3,968,	3,377,
TOTAL IMPORTS .....			24,041,	20,909,	22,807,	19,840,	16,884,

**EXPORTS. — (United Kingdom.)—First Three Months (January—March),  
1863-62-61-60-59.—Declared Real Value, at Port of Shipment, of Articles of  
BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.**

(First Three Months.) (Unit 000's omitted.) BRITISH PRODUCE, &c., EXPORTED.		1863.	1862.	1861.	1860.	1859.
		£	£	£	£	£
<b>MANFRS.—Textile.</b>	<b>Cotton Manufactures..</b>	6,312,	7,530,	9,134,	9,389,	9,550,
	„ Yarn .....	1,143,	1,389,	1,908,	2,425,	2,303,
	<b>Woollen Manufactures</b>	3,209,	2,985,	2,876,	3,005,	2,948,
	„ Yarn .....	984,	669,	641,	807,	545,
	<b>Silk Manufactures ..</b>	443,	473,	532,	503,	559,
	„ Yarn .....	84,	78,	55,	48,	50,
	<b>Linen Manufactures...</b>	1,455,	1,088,	1,084,	1,122,	1,177,
	„ Yarn .....	493,	403,	327,	469,	475,
		14,123,	14,615,	16,557,	17,768,	17,607,
	<b>„ Sewed. Apparel .....</b>	526,	422,	390,	462,	452,
	<b>Haberd. and Millnry.</b>	860,	673,	902,	989,	1,085,
		1,386,	1,095,	1,292,	1,451,	1,537,
<b>METALS .....</b>	<b>Hardware.....</b>	680,	566,	732,	816,	834,
	<b>Machinery .....</b>	838,	718,	750,	663,	576,
	<b>Iron .....</b>	2,536,	2,049,	2,058,	2,395,	2,604,
	<b>Copper and Brass.....</b>	748,	596,	474,	676,	664,
	<b>Lead and Tin .....</b>	610,	586,	350,	573,	584,
	<b>Coals and Culm .....</b>	765,	782,	658,	618,	608,
		6,178,	5,297,	5,022,	5,741,	5,870,
<b>Ceramic Manufcts.</b>	<b>Earthenware and Glass</b>	435,	357,	385,	480,	442,
<b>Indigenous Mnfrs.</b>	<b>Beer and Ale .....</b>	456,	402,	348,	645,	572,
	<b>Butter .....</b>	108,	54,	134,	139,	161,
	<b>Cheese .....</b>	31,	25,	27,	26,	30,
	<b>Candles .....</b>	54,	47,	69,	63,	32,
	<b>Salt .....</b>	52,	58,	78,	61,	39,
	<b>Spirits .....</b>	114,	58,	79,	60,	56,
	<b>Soda .....</b>	198,	186,	117,	226,	251,
		1,013,	830,	852,	1,220,	1,141,
<b>Various Manufcts.</b>	<b>Books, Printed.....</b>	89,	83,	100,	101,	101,
	<b>Furniture .....</b>	64,	45,	35,	48,	51,
	<b>Leather Manufactures</b>	456,	585,	402,	514,	431,
	<b>Soap .....</b>	59,	53,	46,	63,	39,
	<b>Plate and Watches ...</b>	114,	94,	102,	120,	126,
	<b>Stationery.....</b>	59,	57,	143,	181,	185,
		842,	917,	828,	1,027,	933,
<b>Remainder of Enumerated Articles .....</b>		1,771,	1,663,	710,	707,	771,
<b>Unenumerated Articles .....</b>		1,813,	1,649,	2,023,	2,087,	2,219,
<b>TOTAL EXPORTS .....</b>		27,561,	26,423,	27,669,	30,481,	30,520,



SHIPPING. — FOREIGN TRADE. — (United Kingdom.) — First Three Months  
(January—March), 1863-62-61-60.—*Vessels Entered and Cleared with Cargoes,  
including repeated Voyages, but excluding Government Transports.*

(First Three Months.)  ENTERED:—	1863.			1862.		1861.		1860.	
	Vessels.	Tonnage (000's omitted.)	Average Tonnage.	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage. (000's omitted.)	Vessels.	Tonnage (000's omitted.)
<i>Vessels belonging to—</i>	No.	Tons.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Russia .....	43	16,	372	55	20,	60	23,	39	15,
Sweden .....	112	22,	195	65	16,	117	25,	70	17,
Norway .....	427	100,	234	314	62,	212	43,	182	42,
Denmark .....	479	47,	98	309	32,	379	39,	328	34,
Prussia and Ger. Sts. ....	496	140,	282	361	101,	375	108,	311	79,
Holland and Belgium ....	406	53,	130	356	47,	295	39,	271	40,
France .....	760	64,	84	396	35,	597	47,	302	27,
Spain and Portugal .....	87	26,	297	77	24,	102	25,	61	17,
Italy & other Eupn. Sts.	135	40,	370	81	27,	214	61,	117	37,
United States .....	209	217,	1,033	248	221,	489	450,	331	326,
All other States .....	5	2,	400	2	1,	3	1,	7	2,
	3,159	728,	230	2,264	586,	2,843	861,	2,019	636,
United Kingdm. & } Depds. ....	4,544	1,392,	306	3,844	1,181,	4,054	1,221,	3,712	1,113,
<i>Totals Entered</i>	7,703	2,120,	275	6,108	1,767,	6,897	2,082,	5,731	1,749,
 CLEARED:—									
Russia ....	82	31,	378	91	31,	81	28,	70	25,
Sweden .....	86	23,	267	100	25,	116	28,	116	29,
Norway .....	236	55,	233	227	51,	183	44,	207	52,
Denmark .....	432	46,	106	414	44,	404	46,	412	46,
Prussia and Ger. Sts. ....	687	163,	237	739	153,	594	134,	564	133,
Holland and Belgium ....	369	52,	113	438	68,	307	43,	322	53,
France .....	1,010	101,	100	1,223	127,	1,098	110,	697	76,
Spain and Portugal .....	77	26,	337	76	24,	77	21,	69	19,
Italy & other Eupn. Sts.	190	60,	316	97	32,	259	72,	206	64,
United States .....	177	178,	15	260	219,	377	357,	340	327,
All other States .....	6	2,	333	12	6,	5	2,	6	2,
	3,352	737,	207	3,687	780,	3,501	885,	3,009	826,
United Kingdm. & } Depds. ....	5,966	1,723,	288	5,792	1,640,	4,792	1,332,	4,683	1,339,
<i>Totals Cleared</i>	9,318	2,460,	253	9,479	2,420,	8,293	2,217,	7,692	2,165,

**SHIPPING CASUALTIES** *Reported in Lloyd's "REGISTER OF LOSSES," during*  
(Casualties to Foreign Coasters, or to

*Note.*—This information, in a different form, was originally published, at intervals, in "Lloyd's

	Wrecked.				Sunk.			Abandoned.			Missing.
	Totally.	Part Cargo Saved.	Whole, or nearly so, of Cargo Saved.	Total.	Lost.	Raised.	Total.	Lost.	Reco- vered.	Total.	
January—											
1854.....	145	12	3	160	32	6	38	42	6	48	10
'55.....	86	14	3	103	19	6	25	17	6	23	5
'56.....	119	7	4	130	36	1	37	27	5	32	2
'57.....	89	15	6	110	48	4	52	24	7	31	7
'58.....	57	6	3	66	28	2	30	10	4	14	3
'59.....	56	16	3	75	23	3	26	17	2	19	8
Average of } Six Years }	92·0	11·67	3·67	107·33	31·0	3·67	34·67	22·83	5·0	27·83	5·83
February—											
1854.....	73	3	1	77	18	2	20	28	12	40	4
'55.....	59	4	5	68	27	1	28	16	3	19	—
'56.....	42	13	1	56	22	5	27	21	9	30	4
'57.....	58	16	9	83	15	3	18	22	6	28	4
'58.....	71	8	—	79	22	1	23	11	3	14	5
'59.....	46	4	1	51	34	2	36	13	3	16	7
Average of } Six Years }	58·17	8·0	2·83	69·0	23·0	2·33	25·33	18·5	6·0	24·5	4·0
March—											
1854.....	49	1	—	50	22	3	25	25	4	29	8
'55.....	53	10	1	64	18	2	20	19	10	29	6
'56.....	54	7	3	64	18	1	19	13	3	16	1
'57.....	58	17	2	77	29	2	31	24	4	28	9
'58.....	67	8	1	76	29	5	34	12	7	19	4
'59.....	59	12	6	77	25	3	28	11	6	17	3
Average of } Six Years }	56·67	9·17	2·17	68·0	23·5	2·67	26·17	17·33	5·67	23·0	5·17
March Quarter—											
1854.....	267	16	4	287	72	11	83	95	22	117	22
'55.....	198	28	9	235	64	9	73	52	19	71	11
'56.....	215	27	8	250	76	7	83	61	17	78	7
'57.....	205	48	17	270	92	9	101	70	17	87	20
'58.....	195	22	4	221	79	8	87	33	14	47	12
'59.....	161	32	10	203	82	8	90	41	11	52	18
Average of } Six Years }	206·83	28·83	8·67	244·33	77·5	8·67	86·17	58·67	16·67	75·33	15·0

\* The majority of these may



the Months of JANUARY, FEBRUARY, and MARCH, from 1854 to 1859 inclusive.  
Vessels Unidentified, are not included.)

list," but is now collated and tabulated by HENRY JEULA, Esq., Member of Lloyd's, F.S.S.

Stranded.				Condemned.			Touched the Ground, sustaining Trifling Damage.	Total.	
Subse- quent Fate not Reported.*	Got Off.	Got Off with Loss of part Cargo.	Total.	After Striking, &c.	From other Causes.	Total.			
155	179	5	339	5	4	9	6	610	January—
55	119	3	177	5	2	7	2	342	1854
74	120	5	199	4	4	8	3	411	'55
116	197	10	323	1	3	4	2	529	'56
44	101	9	154	4	9	13	—	280	'57
38	120	7	165	4	5	9	—	302	'58
									'59
80·33	139·33	6·5	226·17	3·83	4·5	8·33	2·17	412·33	{ Average of Six Years
63	112	4	179	7	7	14	5	339	February—
47	95	1	143	1	3	4	—	262	1854
71	101	3	175	1	1	2	4	298	'55
35	105	7	147	—	6	6	2	288	'56
51	103	6	160	—	3	3	—	284	'57
33	105	4	142	7	12	19	—	271	'58
									'59
50·0	103·5	4·17	157·67	2·67	5·33	8·0	1·83	290·33	{ Average of Six Years
51	94	5	150	5	2	7	2	271	March—
45	115	8	168	2	3	5	—	292	1854
42	84	5	131	4	5	9	1	241	'55
76	149	5	230	4	3	7	3	385	'56
42	119	3	164	4	7	11	—	308	'57
46	124	4	174	1	10	11	—	310	'58
									'59
50·33	114·17	5·0	169·5	3·33	5·0	8·33	1·0	301·17	{ Average of Six Years
269	385	14	668	17	13	30	13	1,220	March Quarter—
147	329	12	488	8	8	16	2	896	1854
187	305	13	505	9	10	19	8	950	'55
227	451	22	700	5	12	17	7	1,202	'56
137	323	18	478	8	19	27	—	872	'57
117	349	15	481	12	27	39	—	883	'58
									'59
180·67	357·0	15·67	553·33	9·83	14·83	24·67	5·0	1003·83	{ Average of Six Years

be considered as "Wrecks."

**GOLD AND SILVER BULLION AND SPECIE. — IMPORTED AND EXPORTED. — (United Kingdom.) — *Computed Real Value for the First Three Months (January—March), 1863-62-61.***

(000's at unit end omitted.)

(First Three Months.)	1863.		1862.		1861.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
<b>Imported from:—</b>	£	£	£	£	£	£
Australia .....	1,001,	—	1,661,	—	1,612,	—
So. Amca. and W. } Indies .....	1,267,	2,019,	553,	1,307,	357,	1,579,
United States and } Cal. ....	2,496,	320,	1,208,	36,	—	5,
	4,764,	2,339,	3,422,	1,343,	1,969,	1,584,
France .....	7,	302,	65,	249,	886,	206,
Hanse Towns, Holl. } & Belg. ....	181,	485,	344,	591,	138,	114,
Prtgl., Spain, and } Gbrltr. ....	3,	21,	7,	33,	4,	60,
Mlta., Trky., and } Egypt .....	114,	1,	2,	5,	1,	3,
China .....	—	—	—	1,	—	—
West Coast of Africa	28,	1,	38,	2,	12,	—
All other Countries....	7,	2,	77,	7,	14,	8,
<b>Totals Imported</b>	5,104,	3,151,	3,955,	2,231,	3,024,	1,975,
<b>Exported to:—</b>						
France .....	1,294,	245,	1,214,	202,	639,	278,
Hanse Towns, Holl. } & Belg. ....	944,	148,	117,	91,	5,	115,
Prtgl., Spain, and } Gbrltr. ....	1,221,	—	486,	7,	224,	4,
	3,459,	393,	1,817,	300,	868,	397,
Ind. and China (viâ } Egypt) .....	610,	2,662,	353,	2,380,	188,	2,499,
Danish West Indies....	—	—	28,	4,	—	—
United States .....	2,	—	26,	—	3,063,	18,
South Africa .....	34,	11,	—	—	6,	—
Mauritius.....	—	—	—	—	—	2,
Brazil .....	350,	25,	5,	10,	5,	37,
All other Countries....	152,	25,	252,	13,	14,	37,
<b>Totals Exported</b>	4,607,	3,116,	2,481,	2,707,	4,144,	2,990,
<b>Excess of Imports ....</b>	497,	35,	1,474,	—	—	—
<b>„ Exports ....</b>	—	—	—	476,	1,120	1,015,



## REVENUE.—(UNITED KINGDOM.)—31ST MARCH, 1863-62-61-60.

*Net Produce in YEARS and QUARTERS ended 31ST MARCH, 1863-62-61-60.*

[Unit 000's omitted.]

QUARTERS, ended 31st March.	1863.	1862.	1863.		Corresponding Quarters.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	5,722,	5,724,	2,	—	5,821,	5,551,
Excise .....	4,665,	5,044,	379,	—	4,873,	4,507,
Stamps .....	2,374,	2,294,	—	80,	2,191,	2,128,
Taxes .....	357,	355,	—	2,	314,	313,
Post Office .....	955,	905,	—	50,	895,	915,
Property Tax .....	14,073,	14,322,	381,	132,	14,097,	13,414,
	3,890,	4,427,	537,	—	4,024,	6,002,
Crown Lands .....	17,963,	18,749,	918,	132,	18,121,	19,416,
	79,	77,	—	1,	76,	75,
Miscellaneous .....	1,171,	780,	—	392,	339,	729,
Totals .....	19,213,	19,606,	918,	525,	18,536,	20,220,
			NET DECR. £392,868			

YEARS, ended 31st March.	1863.	1862.	1863.		Corresponding Years.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	24,034,	23,674,	—	360,	23,306,	24,461,
Excise .....	17,155,	18,332,	1,177,	—	19,435,	20,361,
Stamps.....	8,994,	8,591,	—	403,	8,348,	8,043,
Taxes .....	3,150,	3,160,	10,	—	3,127,	3,232,
Post Office .....	3,650,	3,510,	—	140,	3,400,	3,310,
Property Tax .....	56,983,	57,267,	1,187,	903,	57,616,	59,407,
	10,567,	10,365,	—	202,	10,924,	9,596,
Crown Lands .....	67,550,	67,632,	1,187,	1,105,	68,540,	69,003,
	300,	295,	—	5,	290,	284,
Miscellaneous .....	2,753,	1,747,	—	1,006,	1,453,	1,802,
Totals .....	70,603,	69,674,	1,187,	2,116,	70,283,	71,089,
			NET INCR. £929,082			

REVENUE.—(UNITED KINGDOM).—QUARTER ENDED 31ST MARCH, 1863 :—  
APPLICATION.

*An Account showing the REVENUE and other RECEIPTS of the QUARTER ended 31st March, 1863 ; the APPLICATION of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.*

Received:—

Surplus Balance beyond the Charge of the <i>Consolidated Fund</i> for the Quarter ended 31st December, 1862, viz.:—	£
Great Britain .....	—
Ireland .....	£924,490
	924,490
Income received in the Quarter ended 31st March, 1863, as shown on preceding page .....	19,213,746
Amount raised per Act 23 and 24 Victoria, cap. 109, on account of Fortifications, &c. ....	200,000
Amount received in the Quarter ended 31st March, 1863, in repayment of Advances for Public Works, &c. ....	299,792
	£20,638,028

Paid:—

Amount applied out of the Income for the Quarter ended 31st March, 1863, in redemption of Exchequer Bills (Deficiency), for the Quarter ended 31st December, 1862.....	£
	2,158,512
Amount applied out of the Income to <i>Supply Services</i> in the Quarter ended 31st March, 1863 .....	10,507,332
Charge of the <i>Consolidated Fund</i> for the Quarter ended 31st March, 1863, viz.:—	
Interest of the Permanent Debt .....	£5,715,487
Terminable Debt .....	690,080
Principal of Exchequer Bills .....	6,300
Interest of „ „ .....	85,455
„ „ Deficiency Bills .....	175
The Civil List .....	101,051
Other Charges on Consolidated Fund .....	655,278
Advances for Public Works, &c. ....	130,786
	7,384,612
<i>Surplus Balance</i> beyond the Charge of the Consolidated Fund for the Quarter ended 31st March, 1863, viz.::	
Great Britain .....	£198,290
Ireland .....	389,282
	587,572
	£20,638,028



CORN.—*Gazette Average Prices (ENGLAND AND WALES) First Quarter of 1863.*

[This Table is communicated by H. F. JADIS, ESQ., Comptroller of Corn Returns.]

Weeks ended on a Saturday 1863.	Weekly Average. (Per Impl. Quarter.)					
	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January 3 .....	45 10	34 3	20 5	32 —	36 8	37 5
„ 10 .....	46 10	34 6	20 6	41 6	36 8	37 4
„ 17 .....	47 10	35 —	20 2	35 —	36 7	37 5
„ 24 .....	48 1	35 8	20 9	30 8	36 3	38 1
„ 31 .....	47 11	35 9	20 10	32 4	36 3	36 8
<i>Average for January ..</i>	47 4	35 —	20 6	34 3	36 5	37 4
February 7 .....	47 7	35 11	20 4	35 2	36 3	36 10
„ 14 .....	47 2	36 3	21 8	33 —	36 7	37 10
„ 21 .....	46 6	36 5	21 8	31 6	36 3	37 2
„ 28 .....	46 7	36 5	21 9	33 4	36 4	37 8
<i>Average for February ..</i>	46 11	36 3	21 4	33 3	36 4	37 4
March 7 .....	46 2	36 10	21 11	33 1	36 2	37 3
„ 14 .....	45 3	36 7	21 4	34 5	35 10	35 11
„ 21 .....	45 —	36 9	21 6	35 11	35 7	34 6
„ 28 .....	45 4	36 5	21 2	32 4	35 4	36 5
<i>Average for March ....</i>	45 5	36 7	21 5	33 11	35 8	36 —
<i>Average for the Quarter ..</i>	46 7	35 10	21 —	33 10	—	36 11

## RAILWAYS.—PRICES, Jan.—March,—and TRAFFIC, Jan.—March, 1863.

Total Capital Ex- pended Mlns.	Railway.	For the (£100). Price on			Miles Open.		Total Traffic first 13 Weeks. (unit 000's omitted.)		Traffic pr. Mile pr. Wk. 13 Weeks.		Dividends per Cent. for Half Years.		
		2nd Mch.	2nd Feb.	1st Jan.	'63.	'62.	'63.	'62.	'63.	'62.	30 Jun. '62.	31 Dec. '61.	30 Jun. '61.
					No.	No.	£	£	£	£	s. d.	s. d.	s. d.
£ 47,7	Lond. & N. Westn.	99½	98	98	1,179	1,130	1,055,	986,	69	67	37 6	47 6	37 6
41,3	Great Western ....	66½	65¼	68¼	992	964	666,	634,	51	53	5 —	30 —	22 6
13,9	„ Northern ....	123¼	128	125½	330	330	331,	311,	75	72	45 —	77 6	37 6
16,8	„ Eastern ....	49½	47½	46½	663	644	341,	320,	39	38	20 —	30 —	16 3
10,4	Brighton .....	114	113½	118¼	250	241	194,	172,	59	54	50 —	70 —	50 —
14,6	South-Eastern ....	94¾	94¼	88¾	306	306	222,	198,	56	49	42 6	50 —	41 8
13,9	„ Western ....	101¼	103¼	102	442	400	224,	196,	39	37	40 —	55 —	40 —
158,6		92¾	92¾	92½	4,162	4,015	3,033,	2,817,	56	53	34 3	51 —	35 1
22,0	Midland.....	125¾	128½	128¾	630	614	493,	464,	60	58	55 —	70 —	62 6
19,5	Lancsh. and York.	109	109¾	109¾	395	395	410,	391,	79	76	37 6	50 —	45 —
11,7	Sheffield and Man.	46	42½	41	237	237	186,	172,	60	57	—	12 6	7 6
23,8	North-Eastern ....	98¾	100¼	100	894	867	491,	466,	42	41	42 6	50 —	52 6
77,0		94½	95¼	94½	2,156	2,113	1,580,	1,493,	57	54	45 —	45 6	41 9
9,1	Caledonian .....	117½	115½	116½	230	230	199,	192,	66	64	50 —	55 —	50 —
5,3	Gt. S. & Wn. Irlnd.	101	104	106	329	329	93,	94,	22	22	50 —	50 —	50 —
250,0	<i>Gen. aver. ....</i>	95¾	96	96	6,877	6,687	4,905,	4,596,	55	53	36 6	49 9	39 5

Consols.—Money Prices 2nd March, 92½ to ¾,—2nd February, 92¼ to ⅔,—1st January, 92¾.  
 Exchequer Bills. „ 2s. dis. to 2s. pm. „ 4s. dis. to par. „ 9s. to 13s. pm.

BANK OF ENGLAND.—WEEKLY RETURN.

Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the FIRST QUARTER (Jan.—March) of 1863.

1	2	3	4	5	6	7
ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
Liabilities.	DATES.	Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
Notes Issued.	(Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.		
Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	1863. Per ann.
28,44	Jan. 7 ....	11,02	3,63	13,79	20,23	15 Jan. 4 p. ct.
27,89	„ 14 ....	11,02	3,63	13,24	20,29	
27,61	„ 21 ....	11,02	3,63	12,96	20,18	29 „ 5 „
27,39	„ 28 ....	11,02	3,63	12,74	20,10	
27,46	Feb. 4 ....	11,02	3,63	12,81	20,07	
27,82	„ 11 ....	11,02	3,63	13,17	19,83	19 Feb. 4 „
28,30	„ 18 ....	11,02	3,63	13,65	19,31	
28,37	„ 25 ....	11,02	3,63	13,72	19,12	
28,26	Mch. 4 ....	11,02	3,63	13,61	19,69	
28,10	„ 11 ....	11,02	3,63	13,45	19,23	
28,32	„ 18 ....	11,02	3,63	13,67	19,46	
28,79	„ 25 ....	11,02	3,63	14,14	19,60	

BANKING DEPARTMENT.

8	9	10	11	12	13	14	15	16	17	18
Liabilities.					DATES.  (Wdnsdys.)	Assets.				Totals of Liabili- ties and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Govern- ment.	Other.	Notes.	Gold and Silver Coin.	
Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £
14,55	3,15	8,78	14,39	,70	Jan. 7	11,63	20,89	8,21	,85	41,58
14,55	3,19	4,28	16,77	,73	„ 14	10,87	20,20	7,60	,86	39,55
14,55	3,23	4,96	14,99	,72	„ 21	10,74	19,39	7,43	,90	38,46
14,55	3,25	5,42	14,41	,67	„ 28	10,61	19,53	7,29	,87	38,30
14,55	3,28	6,35	13,35	,64	Feb. 4	10,60	19,30	7,39	,88	38,17
14,55	3,37	6,95	13,60	,61	„ 11	11,04	19,15	7,99	,90	39,08
14,55	3,38	7,41	13,77	,60	„ 18	11,04	18,75	8,99	,94	39,72
14,55	3,34	7,90	13,37	,60	„ 25	11,04	18,57	9,25	,89	39,76
14,55	3,66	8,04	13,37	,63	Mch. 4	11,14	19,64	8,57	,90	40,25
14,55	3,67	8,67	13,28	,57	„ 11	11,19	19,81	8,87	,88	40,75
14,55	3,67	9,34	13,00	,55	„ 18	11,19	20,19	8,86	,87	41,12
14,55	3,68	10,36	12,74	,54	„ 25	11,29	21,51	9,19	,89	41,88



CIRCULATION.—COUNTRY BANKS.

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ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES.	Private Banks. (Fixed Issues, 433.)	Joint Stock Banks. (Fixed Issues, 330.)	TOTAL. (Fixed Issues, 763.)	Four Weeks, ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 275.)	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 635.)
1862.	Mlns. £	Mlns. £	Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £
Dec. 20	3,10	2,79	5,89							
„ 27	3,10	2,76	5,86							
1863.										
Jan. 3	3,14	2,77	5,91							
„ 10	3,24	2,86	6,10	Jan. 10	1,56	2,66	4,22	2,73	2,81	5,54
„ 17	3,26	2,89	6,15							
„ 24	3,23	2,88	6,11							
„ 31	3,17	2,83	6,00							
Feb. 7	3,14	2,81	5,95	Feb. 7	1,50	2,49	3,99	2,70	2,79	5,49
„ 14	3,11	2,82	5,93							
„ 21	3,09	2,82	5,91							
„ 28	3,07	2,80	5,87							
March 7	3,08	2,74	5,82	March 7	1,44	2,44	3,88	2,70	2,70	5,40
„ 14	3,07	2,85	5,92							
„ 21	3,10	2,89	5,99							
„ 28	3,18	2,96	6,14							

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	London on Paris. 3 m. d.	Bullion as arbitrated.		Prem. or Dis. on Gold per mille.	London on Hambg. 3 m. d.	Bullion as arbitrated.			India House.	At Calcutta on London. 6 m. s.			
		Agnst. Engd.	For Engd.			Agnst. Engd.	For Engd.						
1862.		pr. ct.	pr. ct.			pr. ct.	pr. ct.	pr. ct.	d.	d.	d.	pr. ct.	d.
Jan. 3 ..	25·45	—	—	par	13·6½	—	0·2	146	24⅛	24⅞	55	1½ p.	61½
„ 17 ..	·55	0·2	—	½ pm	·6¾	—	0·2	„	24	„ ¾	„	„	„
Feb. 7 ..	·55	—	—	2 pm	·7¾	—	0·6	163	„	„ ⅝	„	„	„
„ 21 ..	·50	—	—	—	·7½	—	—	—	23⅞	„ ¾	57	1 p.	„
Mch. 7 ..	·52½	—	—	1½ „	·8	—	0·5	—	„	„ ⅝	„	„	„
„ 21 ..	·52½	—	0·1	1 „	·8	—	0·3	188½	„	„ ⅝	„	„	„

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## JOURNAL OF THE STATISTICAL SOCIETY,

SEPTEMBER, 1863.

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*On SUFFICIENT and INSUFFICIENT DIETARIES, with especial REFERENCE to the DIETARIES of PRISONERS. By WILLIAM A. GUY, M.B., Cantab, Fellow of the Royal College of Physicians, Professor of Forensic Medicine, King's College, London, Medical Superintendent to the Prison at Millbank, and one of the Honorary Secretaries of the Statistical Society.*

[Read before the Statistical Society, 16th June, 1863.]

IF the most distinguished of our chemists, physiologists, and physicians were asked, each for himself, to prescribe a fitting diet for an individual of a given sex and age, the task would not be found an easy one. The results would perhaps display a general agreement in principle, but they would certainly exhibit a wide divergence in detail; for the elementary constituents of a wholesome diet, and the proportions in which they ought to be blended, are much better understood than the quantities necessary to the support of life and health.

But the difficulties which attach to the selection of a suitable diet in the case of individuals, are increased tenfold when we come to arrange the dietaries for men, women, or children, in the mass; especially when the element of economy has to be added to the considerations of fitness by which our choice must be mainly determined. Even in the comparatively simple case of a boys' school, the diet which would be sufficient for the eldest boy could scarcely fail to be in excess for the youngest, and *vice versâ*; and in the army and navy, which consist of men selected from the population on account of their freedom from deformity and disease, there is a similar disparity of age, as well as great diversity of constitution. But in such institutions as workhouses, prisons, and hospitals, the task of constructing suitable dietaries is beset with unusual difficulties. If we take the case of prisoners, to which I wish especially to direct the attention of the Society this evening, we shall find the task of prescribing proper dietaries by no means easy. For in the first place, though the majority of prisoners are between the ages of

20 and 35, a considerable minority, even in convict prisons, are under 20, or above 35.\* There are lads and aged men to be provided for in the same prison; and a single dietary, though recommended by convenience, if sufficient for the majority, must needs be excessive for some, and defective for others, among the minority. In the second place, the prisoners, instead of being picked men, as in the army and navy, or selected boys, as in some of our large schools, constitute a mixed class of whom about 60 per cent. are found to be free from mental infirmities or bodily defects, while nearly 25 per cent. suffer from bodily deformities or defects, congenital or acquired, more than 11 per cent. from scrofula and chronic diseases of the lungs or heart, and 4 per cent. from weak mind, insanity, and epilepsy.† In the third place, the prisoners at Millbank or Pentonville, with the exception of the few who are under treatment, are variously occupied; some at the light labour of picking coir; others as tailors, or shoemakers, or weavers, or matmakers, or basket-makers; others again in jobbing work, as bricklayers, carpenters, or smiths, or as gardeners; and a few as cooks or bakers, or as nurses in the infirmary. So that we have at least three well defined causes of difference between prisoner and prisoner—age, constitution, and occupation—which may fairly claim to be taken into account in the arrangement of our dietaries; and yet, as any minute classification of prisoners based upon these considerations is impracticable, for obvious reasons of convenience and economy, there seems to be no alternative, but to adopt, for all male prisoners not under medical treatment, one uniform diet, which must prove in excess for some and in defect for others, if it is to maintain the mass in a state of health, and with a capacity for labour.

The work of devising suitable dietaries for prisoners is also rendered difficult by the necessity of giving practical effect to certain considerations, affecting in a special manner this class of persons. Inasmuch as they are under punishment, their diet should minister to their correction by being unattractive and monotonous; and inasmuch as they are maintained at the cost of the community which they have injured and impoverished, it ought to be as economical as possible. But these very natural conditions are met on the opposite side, by a theory of which I shall have more to say presently, that

\* The ages of convicts, which will be found in detail in a paper by the author, read at the London Meeting of the Social Science Congress, "On some Results of a Recent Census of the Population of the Convict Prisons in England; and especially on the Rate of Mortality at present prevailing among Convicts," may be very roughly stated as follows:—

Under 20, less than 10 per cent.

From 20 to 35, more than 60 per cent.

Above 35, less than 30 per cent.

† For particulars, see the paper cited above.



men in prison require a better and more nutritious diet than the rest of the community; and that the necessity for such a diet increases with the length of their sentences. Hence the anomaly, that the worst offenders come to have the best diet; hence, also, the further anomaly that the able-bodied pauper in the workhouse, and the honest working man, unless very favourably circumstanced, have less food to eat than the worst criminals, and that even soldiers and sailors have little, if any, advantage over them in this respect.

Such being the inherent difficulties of the subject which I have undertaken to examine, I shall begin by seeking to throw some light upon it from the researches of science; then proceed to place myself under the direct teaching of experience; and conclude by giving some account of our existing prison dietaries.

### I.—*Scientific Considerations.*

For one or two years, and in some cases longer, nature nourishes and builds up the frame of the infant, by the milk of the mother, which may be described as an emulsion consisting of a certain quantity of solid elements, intimately mixed up with about eight times their weight of water. The researches of the chemist have shown that this solid portion consists of less than half its bulk of saccharine matter, more than a third of its bulk of the matter of cheese, somewhat more than a quarter of its bulk of oil or butter, with about one hundredth part of mineral substances, of which by far the larger proportion consists of phosphate of lime. The cheese, the mineral matters, and part of the butter supply the solid structures, while the sugar and the rest of the butter keep the body warm by their combustion. It is worthy of a passing remark that the milk of herbivorous animals is sometimes found to contain a free acid, while that of carnivorous animals constantly shows an acid reaction, and that the saccharine matter, in either case, readily takes on the acid fermentation.

If we adopt the usual calculation, and assume  $2\frac{1}{2}$  parts of sugar to be equivalent as fuel, to 1 part of oil, we have in human milk an emulsion which contains plastic or nitrogenous material in the proportion of about 1 part to 3 of respiratory material. This proportion is sometimes stated as 10 of plastic material to 40 of respiratory matter calculated as starch,\* a proportion which I shall assume as correct in what I have further to say on the scientific aspect of my subject.

By chemical research, then, we learn that the body of the infant is nourished and gradually built up by a fluid which contains one part of the constructive element to three or four parts of the non-constructive or respiratory elements; to which we may perhaps add

\* For exact figures, see "Day's Physiological Chemistry," pp. 280 and 491.

that the occasional existence in milk of a free acid, and the great ease with which it turns sour, point to the possible necessity of a free acid as a constituent of a good diet. But this teaching of nature, and of science as her faithful interpreter, fails us in an important point. We do not know the quantity of this typical emulsion which the infant requires and consumes for the support of its life, and the progressive growth of its frame; and if we did, the knowledge would not admit of application to the human being at his full growth.

From milk, which nourishes and builds up the frame of the young of men and animals, it is natural to turn to the egg which performs the same function for the bird in the earliest stage of its existence. Here we find resemblances and differences well worthy of observation. The water which, in milk, was eight times as abundant as the solid matters it held dissolved or suspended, is found in the egg to be only three times as abundant; and the solid matters themselves are found to consist wholly of albumen (the equivalent of casein as constructive material), of oil (the equivalent of butter), and of saline matters, to the exclusion of sugar.\* The albumen holds to the oil the proportion of 14 to  $10\frac{1}{2}$ , or about 7 to 5. By this analysis then we learn that, as with animals so with birds, a material fitted to build up the body must be combined with a material which also enters into the composition of its textures, but which at the same time is a supporter of respiration and a producer of heat. Perhaps, too, we are intended to learn this lesson, that the sugar which exists in the milk of the breathing creature, and not in the egg of the bird which has not yet respired, and holds communication with the air only through its porous shell,—that the sugar is in some peculiar manner the food of respiration.

Of the milk of animals it may suffice to observe that, while it is made up of the same constituent parts as human milk, those parts are blended in different animals in different proportions. Of this difference no feasible explanation can be given. The most obvious difference between the human infant and the young of animals, namely that the former does not derive its clothing from the milk of the mother, while the latter does, only partially explains the discrepancy in question. But the difference between human milk and that of animals is not such as to prevent the latter from being very freely used as an article of diet in every part of the world, and for persons of all ages. Cow's milk, especially, is everywhere in large demand, and enters into many of our prison dietaries. Eggs, though much used by the community at large, do not figure in the ordinary dietaries of our gaols.

What milk is to the support of infant life, that (as the chief,

\* See "*Johnston's Chemistry of Common Life*," by Lewes, pp. 131 and 138.



though not the exclusive, nutriment of the adult) is wheaten flour, and the flour of the cereals, oats, barley, rye, and maize. The analyses and calculations of the chemist have shown that all these substances consist of the plastic, or constructive material, gluten (the equivalent of casein in milk and of albumen in the egg), mixed with from five to six times its weight of the respiratory elements, sugar, starch, and oil. For 10 parts of casein in human milk, there are 40 parts of respiratory or heat-producing elements calculated as starch, while in wheaten flour 10 parts of gluten are mixed with 46 parts of respiratory elements, also calculated as starch. How near the flours or meals of the other cereals approximate to this standard of human milk, the following table will show :\*

	Plastic.	Non-nitrogenous (calculated as Starch).
MILK (HUMAN) .....	10	40
Wheatflour .....	10	46
Oatmeal .....	10	50
Ryemeal .....	10	57
Barleymeal .....	10	57
MILK OF COW .....	10	30

But though the cereals which are most largely employed as staple articles of food, resemble thus closely the food of the infant, and the proportion of the two leading elements in wheat approximate to the proportions in milk more nearly than in the other grains, it must not be supposed that the chemical composition of milk and of wheat presents more than this general resemblance. This is so far from being the case that, while in human milk the saccharine element constitutes little more than one-third of the dry solid matter, the sugar and starch of wheat taken together constitute more than four-fifths; while the casein in milk forms little less than a third, in wheat it is little more than a tenth; and while the butter or oil counts also for less than a third in milk, it scarcely constitutes a fiftieth part in wheaten flour. Wheaten flour, then, as compared with milk, is defective in plastic or constructive material, and still more in oily matters; and it is worthy of remark that the poorer classes in towns very generally supply this defect of oil by butter or dripping, and in the country by the fat of pork or bacon. The deficiency of gluten and albumen, as compared with the casein of milk, is supplied by milk itself, by eggs, by meat, fresh or salt, and by the seeds that abound in casein—the pea, the bean, and the lentil.

Of wheaten flour I have only further to remark, that it stands at

\* The figures are taken from “Day’s Physiological Chemistry,” p. 491.

the head of the cereals, if measured by its yield of sugar; that in the abundance of its starch it yields the palm only to rice (differing in this respect little from Indian meal); that in gluten and albumen (its plastic materials) it follows next in order to lentils, beans, peas, and oats; that in fat it occupies an intermediate position; and that in gum, and in mineral matters, only, does it occupy a place somewhat below the average.

From chemical analysis, then, as well as from large experience, we learn that wheaten flour is admirably adapted to the support of human life. We also know that, when converted into bread, it enters more or less largely into all our dietaries. For this reason, and especially because bread and water, for three days or more in succession, form the staple food of prisoners under punishment, I shall offer a few remarks on this article.

A sack, or 280 pounds, of wheaten flour, mixed into a dough with salt and water, whether fermented or unfermented, issues from the oven as about 360 pounds of bread. The yield varies according to the quality of the flour and the skill of the baker, and also with the two different processes of fermentation and aëration. But, for my present purpose, it will suffice to state that the raw wheaten flour, in being converted into cooked or baked bread, absorbs 2 parts of water for every 7 parts of flour.\* Of other changes it is not necessary to speak; but it should be understood that, though part of the starch may be converted into sugar and gum, neither the gluten and albumen, nor the oil in which wheaten flour is acknowledgedly deficient, admit of any increase in the process of bread making. And yet, in cases where bread is the only article of food, as in prisoners under punishment, or almost the only one, as in the very poorest classes both in town and country, it may be desirable to augment the glutinous element, to introduce the oil usually supplemented by butter or dripping, fat pork or bacon, and even to add something to the saccharine element. Now there are two ways of effecting this. We can make a considerable addition to the gluten and the oil by adding the bran to the flour,† or making the bread of

\* 100 parts of wheaten flour already contain about 16 parts of water, so that an addition of two-sevenths, or nearly 29 parts of water, will raise the whole quantity of water contained in bread to 45 per cent., at which it is usually stated.

† The superiority of brown bread, or of whole-meal bread, to white bread as commonly made, may be inferred from a comparative statement of the constituents of fine wheaten flour and bran respectively.

	Fine Flour.	Bran.
Water .....	16	13
Gluten .....	10	18
Fat .....	2	6
Starch, &c. ....	72	63
	100	100



whole-meal obtained from the grain either before or after the modern process of decortication. By adding to bread so made a certain quantity of treacle, the element of sugar may be economically augmented, while the oil may be considerably increased by substituting for part of the wheaten flour a portion of Indian meal, which is remarkable for the quantity of oil it contains.\* In this way, by substituting the whole-meal for the fine flour, adding a certain quantity of treacle and a certain proportion of Indian meal, a bread might be produced which would prove at once nutritious and economical, and form the nearest convenient approach to the composition of human milk, which is generally, and, I believe justly, assumed as the standard of a perfect food. On bread of this mixed composition, prisoners under punishment might, I think, be confined for a longer period than at present; and if the element of a free acid, of the necessity of which I shall have more to say shortly, were added in the form of the potato, this period might be still further extended.

If such a mixed bread as is here spoken of should be objected to as requiring the use of too many materials, or for any other reason, no difficulty ought to be raised in substituting brown, or whole-meal, bread for the white bread, now so generally in use, both within and without the walls of our prisons. I have no doubt whatever, that it would prove more wholesome as well as less expensive.†

\* The statement in the text respecting Indian meal is justified by the following figures :—

	Fine Wheaten Flour.	Indian Corn Meal.
Water .....	16	14
Gluten .....	10	12
Fat .....	2	8
Starch, &c. ....	72	65
	100	100

See “Johnston’s Chemistry of Common Life,” vol. i, p. 100.

† In support of the opinion expressed in the text, the following passages may be adduced :—1. Pereira, in his treatise on food and diet, quotes with approval the following passage from Dr. Prout’s well-known work on the “Nature and Treatment of Stomach and Urinary Diseases,” p. 300, “Bread, therefore, made “with undressed flour, or even with an extra quantity of bran, is the best form in “which farinaceous and excremental matters can be usually taken; not only in “diabetes, but in most of the other varieties of dyspepsia, accompanied by obstinate “constipation. This is a remedy, the efficacy of which has been long known and “admitted; yet strange to say, the generality of mankind choose to consult their “taste rather than their reason, and by officiously separating what nature has “beneficently combined entail upon themselves much discomfort and misery.”

2. “Bread made from the whole-meal is therefore more nutritious; and as

I have hitherto spoken only of wheaten bread, to the exclusion of rye, barley, and Indian corn, which equally admit of being wrought and baked into bread; of oatmeal, which can be used for a similar purpose; of the potato which is advantageously used as an ingredient of the best bread; and of rice which, on account of its power of absorbing water, is conveniently introduced into the cheaper kinds of bread. Of peas, beans, and lentils I have already spoken incidentally. The exact composition of these substances is given in a table at p. 127 of Dr. Lankester's work on food, to which I refer, and of which I now avail myself to the extent of placing them in the order in which they stand in relation to their most important elements, beginning always with that substance which contains the element under notice in the largest quantity.

STARCH.—Rice; wheat and maize; rye and buckwheat; barley; oats; peas; beans; lentils; potatoes.

SUGAR.—Wheat; oats; barley and rye; potatoes; beans, peas, lentils, and buckwheat; rice; maize.

FAT.—Maize; oats; beans, peas, and lentils; wheat; buckwheat; rye; rice; barley; potatoes.

GLUTEN, CASEIN, AND ALBUMEN.—Lentils; peas and beans; oats; rye; wheat; barley; maize; buckwheat; rice; potatoes.

ASHES.—Barley; beans; oats; peas; buckwheat; rye; wheat; lentils; maize; potatoes; rice.

It is obviously on the flour or meal of one or other of these cereals that we must depend for supplying the staple of our dietaries. We must supply our paupers and prisoners with bread made from wheat, barley, rye, or Indian meal, or with bread skilfully constructed

“many persons find it also a more salutary food than white bread, it ought to be more generally preferred and used. ‘The bran of wheat possesses also the property of dissolving the flour or bread with which it is mixed, and of rendering it more easily digestible in the stomach.’ To this property of bran, as well as to the nourishment it yields, is to be ascribed a portion of those wholesome qualities which many persons have recognised in whole-meal bread.”—“Johnston's Chemistry of Common Life,” vol. i, p. 97.

3. “The husk of the grain is ground along with the grain to make this,”—namely, *brown bread*. “This husk contains more gluten, more nutritive matter than the whole interior, the proportion being, in the husk, about 17, in the seed about 12, in 100 parts. White flour is not only more expensive, but it is far less nutritious than flour in which the bran is ground. Yet the poor as well as the rich prefer white bread. The former even consider the recommendation to eat brown bread as a sort of insult. This is one of the matters in which the world has gone grievously wrong. Brown bread is not only more nutritive, but it is more digestible than white, and if it were not from long habit, would probably be considered more palatable.”—“Dr. F. W. Headland's Medical Handbook,” p. 94.



with the best elements of several of these; or we must make use of oatmeal with water, as gruel, or of oatmeal or Indian meal with milk, as porridge or pudding. Assuming these productions of the cereals as the basis of our dietaries, we must (especially where milk is not admitted as an element) be careful to provide the potato, or some equivalent vegetable or potherb, or some soup containing or not containing meat, but rich in vegetables or potherbs, as guarantees against the scurvy. With bread and potato as a groundwork, it would not be difficult to construct a great variety of diet tables to which no serious objection could be taken on scientific grounds, and which would be sure to maintain a fair state of health in those who are placed upon them.

Thus far I have allowed myself to be guided by the light of science—of science herself largely indebted to nature and experience—and have been led to the discovery of certain suitable forms of food which may be conveniently taken as the staple of our dietaries. But I have not exhausted the teachings of science, for she professes to guide us, not merely to the discovery of suitable articles of food, but also to prescribe the quantities and proportions in which they should be administered. Vierordt, an eminent German physiologist, weighing carefully the results of numerous and precise experiments on that which enters the body as food, and that which leaves it through its several channels of purification and discharge, tells us that an adult male, to keep in good condition, should take about 4 ounces of albuminous matters, nearly 3 ounces of fat, and about  $10\frac{1}{2}$  ounces of amylaceous food daily. About 84 ounces of water would be taken as drink, and about an ounce would have to be allowed for the saline matters contained in, or added to, the three leading articles of food.\*

If we take this scientific estimate of Vierordt as our standard for an adult male, assume a free access to water, and that the saline matters which the body requires are partly contained in any food which we may select, and partly added, as common salt, in the preparation of it, it will not be difficult to frame a dietary which shall fitly carry this scientific theory into practice.

The dietary of Vierordt, expressed in grains, consists of—

Albuminous Matters.  
1,920 grains.

Fat.  
1,440 grains.

Amylaceous Matters.  
5,040 grains.

Now if we assume a pound of bread per diem and a pound of potatoes to be a good basis on which to build up a sufficient dietary, it will be seen how moderate an addition is required to bring the several quantities up to this standard. The three elements, albu-

\* See "Day's Physiological Chemistry," p. 496.

minous, oily, and amylaceous, exist in the pound of bread and pound of potatoes in the following quantities :—

	Albuminous Matters (Gluten and Albumen).	Fat,	Amylaceous Matters (Starch, Sugar, and Gum).
	Grains.	Grains.	Grains.
Wheaten bread ..... 1 lb.	861	65	3,847
Potatoes ..... 1 „	100	14	1,402
Total .....	961	79	5,249
Vierordt's dietary as above	1,920	1,440	5,040
Deficiency .....	959	1,361	209
Requiring about ..... {	2 ozs. lean meat or its equivalent	3 ozs. fat or its equivalent	excess

The amylaceous matter is more than sufficiently supplied by the pound of bread and pound of potatoes, while the remaining elements might be readily supplied by 4 ounces of lean meat three times a-week, 6 ounces of fat pork three times a-week, and a pint of nutritious pea-soup once a-week.

This dietary then would consist of the following elements in the quantities annexed :—

	Per Diem.	Per Week.
	ozs.	ozs.
Bread ... ..	16	112
Potatoes .....	16	112
Lean meat .....	—	12
Fat pork .....	—	18
Meat, peas, pot-herbs, &c., } &c., in soup .....	—	8
Weekly total .....	—	262

If a dietary based on Vierordt's data were required from which the meat element should be wholly excluded, it might be obtained by the following ingredients :—

	Albuminous Matters (Gluten and Albumen).	Fat.	Amylaceous Matters (Starch, Sugar, and Gum).
	Grains.	Grains.	Grains.
Bread ..... 1 lb.	861	65	3,847
Potatoes ..... ½ „	50	7	701
Oatmeal ..... ½ „	638	198	1,810
Milk ..... 1 pint	350	245	315
Vierordt's dietary as {	1,899	515	6,673
above .....	1,920	1,440	5,040
	In defect 21 grains	In defect 925 grains add 653	In excess 1,633 = 653 grains of fat
		In defect 272	



By the figures of this table it is shown that the dietary indicated by Vierordt, but containing plastic material slightly deficient, with little more than half an ounce in defect of fatty matters (the excess of amylaceous matters being converted into its equivalent in fat), may be obtained by combining—

Bread .....	1 lb.	=	112 ozs.	per week
Potatoes .....	$\frac{1}{2}$ „	=	56	„
Oatmeal .....	$\frac{1}{2}$ „	=	56	„
				<hr/>
				224 ozs. per week, with 7 pints of milk

These dietaries, thus roughly based on the scientific formula of Vierordt, I shall distinguish by the epithet “Scientific;” and shall so designate them throughout what remains of this communication. I shall now examine the dietary question (still in relation to prisoners chiefly) by the light of experience, but also by an occasional appeal to authority. Indeed, I shall commence this second division of my paper by referring to the views of John Howard.

II.—Teachings of Experience.

Howard, in his work on prisons,\* says that “those who drink “only water, and have no nutritious liquor, ought to have at least a “pound and a half of bread every day,” and he further recommends half-a-pound of meat on the Sunday with a quart of the broth in which it had been boiled, and a penny a-day in money for cheese, butter, potatoes, pease, or turnips. If we suppose the penny a-day to be expended in the purchase of potatoes, it would procure a pound, and leave some surplus for other purchases, so that the dietary thus recommended by Howard might consist at least of—

Bread,	24 ozs. per day, or	.....	168 ozs.	per week
Potatoes, 16	„	.....	112	„
Meat	.....		8	„
			<hr/>	
Total			288	

a quantity of solid food greatly in excess of that comprised in the dietaries based on the scientific calculations of Vierordt.

In another place† Howard, referring to a previous statement of his, that he was not an advocate for “extravagant and profuse allowance to prisoners,” and that he pleaded “only for necessities in

\* “The State of the Prisons in England and Wales,” &c., 2nd edition (1780), section 3, p. 40.  
† The section headed “Bridewell’s,” p. 47.

“such a moderate quantity as may support health and strength for “labour,” declares himself to be “no advocate for luxury in prisons,” and says that “he would have no meat diet for criminals in houses of “correction, or at most only on Sundays.” Yet he “would plead “that they should have, at least, a pound and a half of good house-“hold bread a-day, and a quart of good beer; besides twice a-day a “quart of warm soup made from peas, rice, milk, or barley. For “a change they might sometimes have turnips, carrots, or potatoes.” For this very liberal dietary, consisting of 168 ounces of bread per week, with 14 quarts of nutritious soup, and 7 quarts of good beer, Howard deems it necessary to offer an apology. “It may be said, “this diet will starve those who work in houses of correction; but I “am persuaded of the contrary, by what I have seen abroad, in the “galleys, in the houses of correction, and among the most robust “labourers. *Though I am sensible that persons confined, whose “minds are depressed, need more nourishment than such as are at “liberty.”*

I ask the attention of the Society to the very liberal notions respecting diet of this great prison reformer, and especially to the concluding words of this passage, which I have distinguished by italics. It is the earliest expression that I have met with of an opinion to which I have already once adverted, and which I shall have occasion again to notice.

The views of John Howard, which I have just cited, were expressed by him about the year 1780, and may be taken to be the opinions of a man in habits of intimacy with the most accomplished physicians of his day, and of a large experience, formed after visiting the prisons of England and the Continent; but at a period when all our prisons abounded with every conceivable moral abuse and sanitary defect, when it was easy to ascribe to one cause evils really due to another, and when mental depression to a degree unknown at present was likely to prevail.

An interval of upwards of forty years must be understood to elapse between the date of Howard’s experiences and the important event in the history of prison dietaries to which I am now to refer.

The Penitentiary at Millbank was opened for the reception of prisoners in the year 1816, and in the year 1822 became the scene of the events I am about to relate. The building was erected on a piece of made ground bordering on the Thames, saturated with water and surrounded by a stagnant ditch. Drinking water was supplied from the river, and there is reason to believe that the arrangements for warming and ventilating the building were defective. That these unwholesome influences made themselves felt, there is ample evidence in the fact that in a period of two years and eight months preceding



the events to which I am about to refer eleven cases of diarrhœa and dysentery, severe enough to be entered in the monthly reports of the then medical superintendent, occurred, of which six proved fatal; and in the further significant fact that after the diet of the prisoners had been reformed, and the scurvy with its associated diarrhœa and dysentery cured, these last-named diseases reappeared with great severity in the summer and autumn of 1823, so that the prison was obliged to be closed for several months, and the prisoners to be removed.

I may add that my predecessor in office, Dr. Baly, basing his opinion on facts which came under his notice, and especially on the frequent re-appearance of the fever, dysentery, and nervous affections, which formed part of the epidemic of 1823, but without the scurvy, always considered the site of the prison unhealthy, and constantly acted on that belief; until at length the old dietary of 1822, condemned as excessive, was virtually restored, being replaced by a dietary nearly equal in quantity, and even more nutritious.

My own experience of four years leads me to think that, thanks to the progressive sanitary improvements of the last quarter of a century and upwards, Millbank Prison is now in a very healthy condition.

The tenants of a prison in the unhealthy state just described became in the years 1822-23 the involuntary subjects of the following disastrous experiment.

On the 22nd March, 1822, Dr. A. Copland Hutchison, the then Medical Superintendent, in obedience to the instructions of the Committee, addressed to them a letter in which he stated that from the high state of health the prisoners had hitherto enjoyed, and the absolute state of plethora which a great majority of them had shown after a certain residence within the walls of the Penitentiary, as well as the frequent recurrence of disease arising from that cause, he had no hesitation in stating that the quantity of food consumed by them was greater than sufficient to maintain them in robust health, with all due consideration to the labour they might, by any possibility, be subjected to.

After adverting to the long terms of imprisonment to which the convicts in Millbank were at that time subjected, Dr. Hutchison proceeded to recommend a reduced scale of diet. The Committee, however, preferred a dietary of their own, which came into play on the 5th of July of this same year, 1822.

The elements of the original dietary which Dr. Hutchison deemed excessive, of the reduced dietary which he suggested in its place, and of the reduced dietary of the Committee, are shown in the subjoined table, together with the present ordinary diet for male prisoners at Millbank:

	Original Dietary.	Dr. Hutchison's Suggestion.	Dietary of the Committee.	Present Ordinary Diet.
	ozs.	ozs.	ozs.	ozs.
Bread.....	168	168	168	154
Meat (boiled beef) ....	24	8	Nil	35
Potatoes.....	112	16	Nil	112
Total solid food....	304	192	168	301
	Pints.	Pints.	Pints.	Pints.
Broth or soup .....	8	12	14	3½*
Gruel or porridge .....	14	14	7	7
Cocoa.....	—	—	—	5¼
Total liquid food....	22	26	21	19¼

\* This is little more than the liquor in which the meat is boiled. But the broth or soup in the dietary of the Committee was probably scarcely more nutritious; for it contained less than one ox-head in 100 pints.

This reduced diet which consisted of 1½ lbs. of bread per diem or 168 ounces per week, with 7 pints of gruel and 14 pints of broth or soup, containing about 10 ounces of meat per week, to the total exclusion of solid meat and potatoes, severely affected the health of the prisoners. In the autumn following, they became feeble and languid, and a few slight cases of scurvy showed themselves; and in the early spring (in the months of February and March), the scurvy, with diarrhœa and dysentery as its associates, became very prevalent; so much so, that more than half the prisoners were attacked. The deaths from dysentery up to the 5th April, 1823, were six in number.

That this reduced dietary was the most efficient and direct of the causes which combined to produce this outbreak of scurvy and dysentery there can be no doubt. An unusually cold winter and the low temperature of the prisoners' cells at night were favourable to the disease, and the unhealthy character of the site probably tended to the development of diarrhœa and dysentery; but there is no room for doubt, that the reduced and altered dietary was the cause of the scurvy and afforded the only adequate explanation of the extent and severity of the outbreak.\*

Here then we have two examples of sufficient if not of redundant dietaries, consisting of solid food to the amount of about 300 ounces, and liquid food to the extent of 22 pints in the one and 19 pints in

\* Consult the Report of the Select Committee on the State of the Penitentiary at Millbank, ordered by the House of Commons to be printed, 8th July, 1823; also Dr. Latham's "Account of the Disease lately prevalent at the General Penitentiary," and Dr. Baly's papers "On the Prevention of Scurvy in Prisons," "Pauper Lunatic Asylums," &c., published in the "London Medical Gazette," 10th February, 1843; and "On the Mortality of Prisons," read before the Royal Medical and Chirurgical Society, in February, 1845.



the other. Of the sufficiency of the one, Dr. Hutchison's statements may be taken to be satisfactory evidence ; of the sufficiency of the other, my own experience of nearly four years may be allowed to stand as voucher. We have also in the dietary of the Committee an example of an insufficient dietary,—proved to be insufficient by the event ; but whether that insufficiency consists in mere reduction of quantity, or in the omission of some element essential to a wholesome dietary, is a question that must be reserved for discussion till I have given the results of later experience.

I now turn for information to two important documents, published in the year 1836. They are contained in the "Second Annual Report of the Poor Law Commissioners for England and Wales." The first is the circular letter relative to workhouse dietaries, addressed to the Clerks of the Boards of Guardians by Mr. Edwin Chadwick ; and the second the "Report on Middlesex and Surrey," by Mr. C. Mott, Assistant Poor Law Commissioner. Mr. Chadwick's letter offers to the Board of Guardians six several dietaries for able-bodied paupers, all of which it is alleged had been used in different parts of England, and proved to be sufficient in quantity, and perfectly unexceptionable as to the nature of the provisions specified in each. These six dietaries for able-bodied male paupers consisted of the following elements in the quantities stated.\* The constituents are so arranged as to admit of comparison with the other dietaries quoted in this paper.

English Pauper Dietaries, 1836.

	Ounces per Week.					
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Bread.....	84	112	132	116	98	102
Meat (pickled pork or bacon*).....	15	—	13	6*	10	8
Potatoes (or other vegetables*) .....	24	—	24*	—	48	24
Total of the above....	123	112	169	122	156	134
Meat pudding .....	—	16	—	12	—	—
Suet or rice pudding....	14	32	—	24	14	16
Yeast dumpling.....	—	—	—	—	—	22
Cheese .....	8	18	18½	14	8½	8
Total of solid food....	145	178	187½	172	178½	180
Soup or broth { <i>pints,</i> <i>pr. wk.</i>	7	—	1½	6	3	2
Gruel or porridge ,,	10½	—	10½	10½	10½	—
Total liquid food ....	17½	—	12	16½	13½	2
Vegetables (quantity } not specified*) .... }	—	*	—	*	24	—

\* The corresponding dietaries for women are not given in this paper, which must be understood throughout to deal only with adult males.

Of these six dietaries, the most liberal (No. 5) allows to the adult male able-bodied pauper  $202\frac{1}{2}$  ounces of solid food, including vegetables, and  $13\frac{1}{2}$  pints of liquid food, against the 301 ounces of solid food and  $19\frac{1}{4}$  ounces of liquid food of the present ordinary dietary at Millbank for the male convicts, being an excess of food in favour of the convict of nearly 100 ounces. Mr. C. Mott, referring to these six dietaries, says of them, that he is prepared to show that this allowance is not only sufficient, but that it exceeds the quantity consumed by agricultural labourers and mechanics, who support themselves by their own exertions; and he alleges that agricultural labourers are unable to procure for themselves and families more than an average allowance per head of 122 ounces of food (principally bread) per week, of which he supposes that the man consumes 140 ounces, namely, 134 ounces of bread and 6 ounces of meat. These statements were based on returns from labourers in the southern agricultural counties, whose income did not average for the family more than 2s. per head per week. From similar returns obtained from *manufacturers* or *mechanics* living in towns, with average incomes of 3s. 9d. per head per week; Mr. Mott inferred that these persons did not consume so large a quantity of nutritive matter, though they ate more meat; and this was found to hold good also in reference to workmen able to earn on an average 6s. 9d. a-week. On extending his inquiries to classes of men using extreme bodily exertion, as mowers, or sawyers, and prize-fighters when training, he found their consumption to extend to from 27 to 30 ounces per day, being 189 or 210 ounces per week; and he quotes the experience of Sir Edward Parry, to the effect that 10 ounces of biscuit, 9 ounces of pemmican, and 1 ounce of cocoa daily (being 20 ounces of solid food per diem, or 140 ounces per week) were found amply sufficient to support his sailors under the ordinary exertions of performing the regular ship duties, while it was agreed on all hands that 27 or 28 ounces per diem (being 189 or 196 ounces per week) would have been amply sufficient for their support under all the hardships of that climate. After noticing the strange discrepancies then existing in the workhouse dietaries, and especially the extreme instances of the Farnham Workhouse, where he caused the day's food to be placed in the scales, and found it to weigh 66 ounces,—a quantity at which the paupers grumbled as insufficient, and the case of the pauper washerwomen of Bulcamp Workhouse, Suffolk, who were formerly allowed 8 pints of beer per day each. Mr. Mott alludes to similar discrepancies in the dietaries of prisons, and instances the allowance to transported felons as amounting to 49 ounces per diem (being 343 ounces per week). Though some of these statements of Mr. Mott are wanting in precision, they go far to justify the allowance of food to the able-bodied pauper, as con-



tained in the six dietaries given in the table, and to raise a doubt of the necessity of the more liberal scale of diet awarded to the criminal.

The statements made by Mr. Mott in this Report of 1836, were partly anticipated by Mr. Chadwick, in his "Extracts from the "Information received by His Majesty's Commissioners as to the "Administration and Operation of the Poor Laws," published in 1833. From this interesting and instructive document, I extract (in a condensed form) the dietary table given at p. 261.

	Ounces of Solid Food.
1. The independent agricultural labourer .....	122
2. „ soldier .....	168
3. „ able-bodied pauper, with the addition, in most work- houses, of vegetables 48 ozs., soup 3 quarts, milk porridge 3 quarts, table beer 7 quarts, and many other comforts .....	151
4. „ suspected thief .....	181-203
5. „ convicted „ .....	239
6. „ transported „ .....	330

Mr. Chadwick also quotes an important statement made by Mr. Hewitt, to the effect that a reduction from a diet consisting of 169 ounces of solids weekly to one of 134 ounces, was productive of no bad effects; the paupers maintained on the low diet were as well, if not better, after, than before the change; and few of them, comparatively to those who had been accustomed to live on a more full diet, suffered by the cholera. It is worthy of remark that the first quantity stated (169 ounces), is one ounce in excess of the reduced diet at Millbank, which preceeded the outbreak of scurvy and dysentery, and that this 169 ounces was further reduced without injury to health.

But I ought not to rest satisfied with the ingenious comparison made by Mr. Chadwick, in 1833, seeing that the materials exist for a more exact comparison between the dietaries of paupers and criminals at the present time, and that the present opportunity is a favourable one for either invalidating or confirming the popular impression that the prisoner is better fed than the pauper. Now it would be an act of injustice to those gentlemen on whom the supervision and management of our gaols and convict establishments devolves, if we were to compare the able-bodied inmates of our workhouses whose average term of residence does not perhaps exceed two months, with prisoners whose sentences are of much longer duration, or with convicts who are incarcerated for periods of three years and upwards.

The only satisfactory course to adopt is to compare the dietary of some class of prisoners whose period of detention does not greatly exceed the sojourn of the able-bodied pauper in the workhouse with the dietary of such able-bodied pauper.

Such a dietary is to be found in class 3 of the “Dietaries recommended for the use of County Gaols and Prisons,” by the Home “Office.”\* It is the dietary for “convicted prisoners employed at hard labour for terms exceeding twenty-one days, but not more than six weeks; and convicted prisoners not employed at hard labour for terms exceeding twenty-one days, but not more than four months.” Though the several county gaols and prisons do not always exactly conform themselves to this description, class 3 may in all cases be taken to represent a class of prisoners resembling more closely than any other the condition of the able bodied pauper. In order to render this comparison as fair as possible, I have arranged in one table twelve dietaries of county prisons, as given in the Return for 1857, and the same number of dietaries of union workhouses, the unions being situate in the same cities or county towns as the prisons, or at least in the same counties. The union dietaries, for copies of which I am indebted to the kindness of my colleague, Mr. Purdy, are those which have received the formal sanction of the Poor Law Board at various dates from 1845 to 1859. I give the broad results of an analysis of these two classes of dietaries in the annexed table. The circumstance most worthy of notice in relation to the two dietaries, is that while the prison dietaries rarely comprise more than three solid and two liquid elements (bread, meat, and potatoes; and meat-soup and gruel), the pauper dietaries exhibit a much greater variety both of solid and liquid elements.

*Prisoners (Class III) and Paupers Compared.*

PRISONS.	Solids.	Liquids.	Solids.	Liquids.	UNIONS.
	ozs.	pts.	ozs.	pts.	
1. Gaol of Newgate .....	212	17	190½	20½	1. City of London
2. Horsemonger Lane } Gaol .....	160	18	177½	13	2. St. Mary, Newington
3. Bedford Prison .....	210	16	237	13½	3. Bedford
4. Stafford County Gaol ...	210	16	220	22½	4. Burton-upon-Trent
5. St. Augustine's Pri- } son, Canterbury ... }	210	16	210	—	5. Canterbury City
6. Chester County Gaol....	210	16	224	36	6. Chester City and County
7. Durham „ ....	232	17	170	11	7. Durham
8. Sussex Gaol, &c., Lewes	168	21	196½	15½	8. Lewes
9. Nottingham County } Gaol .....	238	16	175	36	9. Nottingham
10. Southampton County } Prison .....	199	17	186	15	10. Southampton Town and County
11. Salford New Bailey } Prison .....	210	—	162	43	11. Salford
12. York House of Cor- } rection, Wakefield }	167	18	200	22½	12. Wakefield

\* See Parliamentary Return, No. 154, printed 21st March, 1857. The dietaries were first recommended in 1843.



If we carefully examine this table, we shall find that the prisoner in our county and borough gaols has little, if any, advantage over the pauper. In six prisons, the diet is somewhat better than in the six unions compared with them, while in the six others it is somewhat worse. Taken one with another, the prisoners have a slight advantage in the more solid elements of their diet, and the paupers in the liquid elements. The prison diet may be fairly represented by an average of 202 ozs. of solid food and 16 pints of liquid food, the pauper diet by 196 ozs. of solid food and 20 pints of liquid food per week.

A very interesting document, bearing on the question of dietaries, is to be found in the Second Annual Report of the Board of Supervision for the Relief of the Poor in Scotland. It is in the shape of a report by two accomplished Scotch physicians, Drs. Alison and Christison, and bears date 16th January, 1847. After examining the dietaries of the charity workhouses in Scotland, and the documents relating to the diet of the poorhouses in England and Ireland, these gentlemen recommend three dietaries—for the healthy adult male inmates of workhouses who do little or no work, and who have no great appetite; for those who also do little or no work, but have a vigorous appetite; and for those who do work. These three dietaries consist of the following elements:—

Scotch Pauper Dietaries (Drs. Alison and Christison), 1847.

	Per Week.		
	No. 1.	No. 2.	No. 3.
	ozs.	ozs.	ozs.
Bread .....	42	56	56
Meat .....	—	—	28
Oatmeal .....	42	56	56
Total solid food .....	84	112	140
	Pints.	Pints.	Pints.
Butter-milk or skimmed milk .....	7	10½	10½
Broth (containing 2 ozs. of meat, and } vegetables .....	10½	10½	10½
Total liquid food .....	17½	21	21

These dietaries do not admit of exact comparison with those comprised in the table at p. 253; but it is obvious that they are on a much less liberal scale. The third dietary of the series, or that devised for able-bodied paupers who do work, contains five ounces less of solid food than No. 1 (the least liberal of the six English dietaries), while the liquid elements (milk and broth) are only in excess by 3½ pints. It ought, however, to be understood that the oatmeal of the Scotch dietary is reckoned as solid aliment, and that there

is an excess of milk in the Scotch dietaries; but even when these differences are taken into account, the best of the three Scotch dietaries will be found to be less liberal than five out of six of the standard English dietaries.

And here it will be interesting to observe how much more liberally the worst class, of the worst section, of our criminals has been dealt with than the English or Scotch pauper. The convicts in Millbank, who are under punishment for serious breaches of prison discipline, are placed upon a diet which is known as the "*Penal Class Diet*." It was so framed as to exclude meat, but it offers ample compensation in the abundance of the milk element, and of the highly nutritious meal of the oat and maize. I will compare this penal diet of the convict with the diet of the able-bodied English pauper which is the most liberal in its allowance of bread and meat, and with the dietary of the Scotch pauper with a good appetite but doing little or no work, premising that the convicts of the penal class also do little or no work.

	Penal Class, Millbank.	English Pauper.	Scotch Pauper.
	ozs.	ozs.	ozs.
Bread .....	84	132	56
Oatmeal .....	70	—	—
Indian meal .....	70	—	—
Potatoes .....	56	24	56
Meat .....	—	13	—
Cheese .....	—	18½	—
<b>Total solid food .....</b>	<b>280</b>	<b>187½</b>	<b>112</b>
	Pints.	Pints.	Pints.
Milk .....	10½	—	10½
Soup or broth .....	—	1½	10½
Gruel or porridge .....	—	10½	—
<b>Total liquid food .....</b>	<b>10½</b>	<b>12</b>	<b>21</b>

The indication afforded by these tables of a disposition to treat the criminal with more liberality than the pauper, is very strikingly confirmed by the proceedings of the prison authorities in the experiments which they caused to be made at Pentonville during the years 1842 and 1843. The object which they had in view was to discover a suitable diet for prisoners under solitary confinement in a building planned with the utmost attention to every sanitary requirement, and erected on a site selected for its salubrity. It could not be alleged that a liberal diet was necessary to counteract the depressing effects of a low and unhealthy site such as that occupied by the prison at Millbank, though it might be required to support the prisoner under the depressing influence of the separate system of



confinement. But whatever the motive, certain it is that the dietary adopted at the very opening of the prison, was such a diet as would scarcely have been employed in a workhouse. It consisted of the following elements :—

	Per Week.		Per Week.
Bread ..... <i>ozs.</i>	120	Soup ..... <i>pints</i>	2½
Meat ..... „	20	Gruel ..... „	7
Potatoes ..... „	40	Cocoa ..... „	5¼
Cheese..... „	4	Milk ..... <i>ozs.</i>	14
		Molasses ..... „	1½
Total solid food.... „	184	Total liquid food.. „	15½

This dietary, it will be observed, is in excess of the most liberal of the six selected for the guidance of our English workhouses, and still more in excess of the best of the three Scottish dietaries. But it was only the first of a series of five experimental dietaries; and it fell short of the one ultimately adopted, and now in use, by no less than 96 ounces of solid food, and 1 pint of liquid food, per week.

I will present these five dietaries in the most intelligible form I can devise, and then offer some observations upon them. The gruel, cocoa, milk, and molasses, it should be observed, are common to all the dietaries.

Experimental Dietaries, Pentonville Prison, 1842-43.

	Per Week.				
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Gruel ..... <i>pints</i>			7		
Cocoa ..... „			5¼		
Milk ..... <i>ozs.</i>			14		
Molasses ..... „			1½		
Bread ..... <i>ozs.</i>	120	140	112	112	140
Meat ..... „	20	20	28	28	28
Potatoes ..... „	40	40	56	112	112
Cheese..... „	4	4	—	—	—
Soup ..... <i>pints</i>	2½	2½	3½	3½	3½
Percentage of prisoners—					
Losing weight .....	62	43	70	22	16
Gaining „ .....	26	46	14	45	59
Stationery .....	12	11	16	33	25
Average loss (in pounds) .....	5	1·68	1·75	1·50	1·58
„ gain „ .....	2·25	2·16	1·21	1·55	1·84
Total loss .....	310	73	122	33	25
„ gain .....	58	98	17	70	108
Balance of loss .....	252	—	105	—	—
„ gain.....	—	25	—	37	83

The first of these experimental diets was in use nearly  $3\frac{1}{2}$  months (from December 21st, 1842); the second, less than 2 months (from May 4th, 1843); the third, about  $5\frac{1}{2}$  months (from May 24th, 1843); the fourth, nearly 2 months (from November 14th, 1843); and the fifth from January 10th, 1844, onwards.

Before I proceed to examine these important experiments, I must observe that they are wanting in some elements of scientific exactness. The periods for which the prisoners were placed on the respective diets are unequal; the experiments were not made at the same season of the year, and the groups submitted to the several experiments did not consist of the same prisoners. Still the results of the experiments are instructive, and deserving of careful attention. I will state them in as few words as possible, distinguishing, for the sake of clearness, additions from substitutions.

*Experiments 1 and 2.*—An addition of 20 ounces of bread in the week leads to a decrease in the number of prisoners losing weight from 62 to 43 per cent., and an increase of prisoners gaining weight from 26 to 46 per cent., a balance of loss of 252 lbs. being exchanged for a balance of gain of 25 lbs. This increase of 277 lbs. is altogether out of proportion to the extent of the change in the diet, and to the results of any other comparison for which the experiments afford the materials.

*Experiments 3 and 4.*—On making a simple addition of 56 ounces of potatoes to the diet of experiment 3, the number of prisoners losing weight falls from 70 to 22, while the number gaining weight rises from 14 to 45, the balance of loss of 105 lbs. being changed to a balance of gain to the amount of 37 lbs. The increase of weight is therefore equivalent to 142 lbs.

*Experiments 3 and 5.*—An addition of 28 ounces of bread and 56 ounces of potatoes causes the prisoners losing weight to fall from 70 to 16, and those gaining weight to rise from 14 to 59, and substitutes a balance of gain of 83 lbs. for a balance of loss of 105 lbs., which is equivalent to a gain of 188 lbs.

*Experiments 4 and 5.*—On adding 28 ounces of bread, the prisoners losing weight fall from 22 to 16, and those gaining weight rise from 45 to 59, and the balance of gain of weight rises from 37 lbs. to 83 lbs., equivalent to a gain of 46 lbs.

*Experiments 1 and 3.*—On substituting 8 ounces of meat for 8 ounces of bread, and 16 ounces of potatoes, with 1 pint of soup for 4 ounces of cheese, the number of prisoners losing weight is increased from 62 to 70, while those gaining weight fall from 26 to 14; but in consequence of the extraordinary average loss of 5 lbs. per man under experiment 1, the balance of loss is reduced from 252 lbs. to 105 lbs., which is equivalent to a gain of 147 lbs. In this case the improvement is altogether disproportionate to the change of diet.



*Experiments 1 and 4.*—By substituting 8 ounces of meat for 8 ounces of bread, and 72 ounces of potatoes with a pint of soup for 4 ounces of cheese, the number of prisoners losing weight falls from 62 to 22, while the number gaining weight rises from 26 to 45, a balance of loss of 252 lbs. being changed to a balance of gain of 37 lbs. This is equivalent to a gain of 289 lbs. So that an addition of 56 ounces of potatoes in the week raises the gain under experiments of 1 and 3 from 147 lbs. to 289 lbs.

*Experiments 1 and 5.*—The substitution of 20 ounces of bread, 8 ounces of meat, 72 ounces of potatoes, and 1 pint of gruel for 4 ounces of cheese, causes the number of prisoners losing weight to fall from 62 to 16, and the number gaining weight to rise from 26 to 59; while it substitutes a balance of gain of 83 lbs. for a balance of loss of 252 lbs. This is equivalent to a gain of 335 lbs.

*Experiments 2 and 3.*—A substitution of 8 ounces of meat, 16 ounces of potatoes, and 1 pint of soup for 28 ounces of bread and 4 ounces of cheese, causes the number of prisoners losing weight to rise from 43 to 70, and the number gaining weight to fall from 46 to 14, while it substitutes for a balance of gain of 25 lbs. a balance of loss of 105 lbs. This is equivalent to a loss of 130 lbs. As the dietary in experiment 3 is at least as nutritious as that in experiment 2, this very considerable loss of weight is in striking opposition to the theory on which the experiments are based.

*Experiments 2 and 4.*—A substitution of 8 ounces of meat, 72 ounces of potatoes, and 1 pint of soup for 28 ounces of bread and 4 ounces of cheese causes the number of prisoners losing weight to fall from 43 to 22, and the number gaining weight to fall from 46 to 45, and raises the balance of gain of 25 lbs. to 37 lbs. This is equivalent to a gain of 12 lbs.

*Experiments 2 and 5.*—A substitution of 8 ounces of meat, 72 ounces of potatoes, and 1 pint of soup for 4 ounces of cheese, causes the number of prisoners losing weight to fall from 43 to 16, and the number gaining weight to rise from 46 to 59, and substitutes a balance of gain of 83 lbs. for a balance of gain of 25 lbs., being an increase of 58 lbs.

Taken one with another, these experiments are not satisfactory or convincing. They are, as I have already stated, wanting in scientific exactness; they deal in substitutions where simple additions of food would have been preferable; and though the general tendency of the experiments is to connect increase of weight with increase of food, the one increase is not in proportion to the other, and the exception to the rule, in experiments 2 and 3, is striking and suggestive of doubt. But of this, I think, there can be no doubt whatever, that the small increase which, in the fifth experiment, followed an addition of 28 ounces of bread, did not justify the

experimenters in bringing their series of trials to a conclusion, and in fixing on 140 ounces of bread as the proper allowance to the prisoner, rather than the 112 ounces of the fourth experiment, or some quantity intermediate between 112 ounces and 140 ounces.

Now the value of these experiments rests upon the assumption that there is a very intimate relation existing between increase of food and increase of weight, and that this relation is not apt to be seriously disturbed by other causes patent or obscure, known or or unknown. But if it can be shown that the weight of prisoners rises and falls in a marked degree from obscure causes, which cannot be controlled or set aside by the experimenter, then it must follow that the experiments under consideration are not to be trusted as guides to a sufficient dietary. That such obscure causes are in operation, a reference to some experiments made in the Glasgow Bridewell in 1840 will show.†

A series of eight experiments were made, consisting of six (the first three and the last three) on groups of 10 prisoners variously constituted of men and women at different ages, and of boys and girls about 13 or 14 years of age; and of two larger groups of 21 and 20 respectively, of which the greater number were adult males. The particulars of the eight dietaries, with the average weights of the prisoners at the end of the month (each dietary being continued for that period), are given in the table annexed.

*Experiments at Glasgow Bridewell, 1840.*

	Per Week.			
	No. 1.	No. 2.	No. 3.	No. 4.
	OZS.	OZS.	OZS.	OZS.
Oatmeal .....	91	91	91	91
Potatoes, boiled } (baked*) .....	336	336	336*	224
Meat .....	—	—	—	28
Total solid food ....	427	427	427	343
	Pints.	Pints.	Pints.	Pints.
Butter-milk (skim- } med milk*) .....	10½	2½*	10½	10½
Total liquid food....	10½	2½	10½	10½
Average weight gained	4 lbs.	4 lbs.	—	—
,, lost ....	—	—	1½ lbs.	1¼ lbs.
Prisoners submitted { to experiment ....	5 men 5 boys	5 men 5 girls	{ 3 young men 5 „ women 2 boys	{ 16 males 5 females

† See “Fifth Report of the Inspectors of Prisons (Scotland),” p. 9.



Experiments at Glasgow Bridewell, 1840—Contd.

	Per Week.			
	No. 5.	No. 6.	No. 7.	No. 8.
	OZS.	OZS.	OZS.	OZS.
Oatmeal .....	91	56	91	—
Potatoes, boiled .....	112	112	—	672
Bread .....	—	112	56	—
Meat .....	56	—	—	—
Total solid food ....	259	280	147	672
	Pints.	Pints.	Pints.	Pints.
Butter-milk .....	10½	7	10½	—
Broth* .....	—	—	14	—
Total liquid food....	10½	7	24½	—
Average weight gained	—	2¾ lbs.	—	3½ lbs.
„ lost ....	very slight loss	—	less than ½ lb.	—
Prisoners submitted { to experiment .... {	15 males 5 females	5 youths 5 young women	5 young men 5 „ women	10 young men and boys

\* Containing to the quart 4 ozs. of barley and 1 oz. of bone, with vegetables.

Now, though the groups of prisoners are small and variously constituted, and the experiments consequently wanting in scientific exactness, some of the results are worth noting as throwing light upon the value of these weighings, when used as tests of a sufficient dietary. Between the first and third experiments, for instance, there is this difference only, that the potatoes are boiled in the one and baked in the other; but while the ten prisoners in the one experiment gain on an average 4 lbs., the same number, in the other experiment, lose, on an average, 1½ lbs. Again, though the substitution in the second experiment of 1½ pints of skimmed milk for 10½ pints of butter-milk in the first, leaves the average gain of 4 lbs., unaltered, the restoration of the 10½ pints of butter-milk in the third experiment is followed by an average loss of 1½ lbs., in lieu of an average gain of 4 lbs. It is also worthy of remark that, while the four dietaries which are followed by a considerable average gain are all vegetable diets, and one of them consists solely of 6 lbs. of potatoes daily, two out of four dietaries which show a loss of weight contain a liberal element of meat. Lastly, it may be observed that, while the eighth dietary, consisting wholly of potatoes, shows an average gain of 3½ lbs., the seventh dietary, the only one from which the potato is wholly omitted, shows an average loss of less than half-a-pound.

The inference to be drawn from these experiments, that gain or loss of weight is a deceptive test of a sufficient diet, is strengthened by more exact experiments now to be described.

On the 29th of last January, I caused 25 healthy prisoners continuously employed as mat-makers, and the like number of prisoners continuously employed as tailors, the whole 50 prisoners being fed during the whole duration of the experiments on the ordinary diet of Millbank prison, to be carefully weighed for six weeks in succession. By comparing the weights of the first and fifth weighings, and those of the second and sixth weighings, in the case of the matmakers and in that of the tailors, I obtained four results fairly comparable with those of the Pentonville experiments, but without any alteration of diet.

After the first complete interval of one month, the experiments on the 25 mat-makers yielded the following results:—

68 per cent.	had <i>gained</i> , on an average.....	1'09 lbs.
20	„ <i>lost</i> , „ .....	1'15 „ and
12	„ <i>neither gained nor lost</i> : while the } ultimate result was an average nett <i>gain</i> of .... }	0'51 „

After the second complete interval of one month, this experiment being supposed to begin one week later than the first,—

16 per cent.	had <i>gained</i> , on an average.....	2'12 lbs.
80	„ <i>lost</i> , „ .....	2'10 „ and
4	„ <i>neither lost nor gained</i> : while the } ultimate result was an average nett <i>loss</i> of..... }	1'46 „

The corresponding experiments on the 25 tailors gave the following results:—

#### *First Experiment.*

68 per cent.	had <i>gained</i> , on an average.....	1'98 lbs.
28	„ <i>lost</i> , „ .....	1'14 „
4	„ <i>neither gained nor lost</i> : while the } ultimate result was an average nett <i>gain</i> of .... }	1'02 „

#### *Second Experiment.*

32 per cent.	had <i>gained</i> , on an average.....	2 lbs.
56	„ <i>lost</i> , „ .....	1'59 „
12	„ <i>neither gained nor lost</i> : while the } ultimate result was an average nett <i>loss</i> of..... }	0'11 „

Here, then, under as complete an equality of circumstances as it was possible to command, with the same men, the same occupations, and the same food, the two experiments in each case being separated by the short interval of one week, the mat-makers lose in the second experiment nearly a pound more than they gain in the first; while the tailors, who gain more than a pound in the first experiment, lose a small fraction of a pound in the second.



Now, as the prisoners submitted to experiment at Pentonville were placed on each of the five dietaries for periods exceeding one month, we have only to suppose the weighings to have commenced a week earlier or a week later to have obtained widely different results.

One fact established by these experiments at Millbank is well worthy of remark. In the first experiment, the 25 mat-makers gained, one with another, about half-a-pound, while the tailors, in the corresponding experiment, gained more than one pound; the mat-makers, in the second experiment, lost nearly a pound and a half, while the tailors only lost a small fraction of a pound. But it is not to be doubted that the mat-makers, who gained least and lost most, were in quite as good a state of health as the tailors, who gained more and lost less.

In these experiments one result well worth noting is the different order of weekly increase and decrease of weight in the two classes of prisoners—the mat-makers and the tailors.

In the first week the mat-makers, who weighed collectively 243 stone, *gained* 56 lbs., and the tailors, who weighed collectively nearly 250 stone, *gained* only 38 lbs. In the second week, the mat-makers *lost* 24 lbs., while the tailors *gained* 12 lbs. In the third week, the mat-makers *gained* 3 lbs., while the tailors *lost* 4 lbs. In the fourth week, the mat-makers *lost* 22 lbs., and the tailors 19 lbs. In the fifth week, the mat-makers and tailors *both gained*, the one 7 lbs., the other 11 lbs.

One other result worthy of attention is obtained by throwing the two classes of prisoners into one mixed group, and noting the fluctuations of weight from week to week. A group of 25, consisting of 12 mat-makers and 13 tailors, yielded the following weekly fluctuations:—

In the first week there was a gross *gain* of 56 lbs.; in the second week a *loss* of 14 lbs.; in the third week a *gain* of 2 lbs.; in the fourth week a *loss* of 14 lbs.; in the fifth a *gain* of 10 lbs.; in the sixth a *gain* of 18 lbs.; in the seventh a *loss* of 5 lbs.; in the *eighth* a *gain* of 11 lbs.; in the ninth a *gain* of 12 lbs.; and in the tenth and last a *loss* of 5 lbs. These weighings were continued from January 19th to March 30th.

If we suppose a series of weighings to be made at intervals of one month from each successive week of this series, so as to resemble the experimental weighings at Pentonville, we should have had, as the result of the first weighing, a gain of 29 lbs; as the result of the second, a loss of 17 lbs.; and, as the results of the five remaining weighings, a gain of 16 lbs., 9 lbs., 36 lbs., 37 lbs., and 13 lbs., respectively.

The facts which I have now brought forward, proving, as they do,

that there are great and constant fluctuations in short intervals of time, in the weights of men whose diet, occupation, and mode of life remain unchanged; and also that men who are differently occupied, though fed on the same food, and in other respects similarly treated, differ from each other in the order as well as the degree of fluctuation in weight; these facts cannot but impair the value hitherto attached to weight as a test of sufficiency or insufficiency of diet. And I must repeat my conviction, that the experiments conducted at Pentonville Prison in 1842-43 have not sufficed to determine, with any approach to exactness, the quantities of the several articles of food comprised in the dietary of that prison which are necessary to the maintenance of the health and efficiency of the prisoner.

Hitherto I have been dealing with mixed dietaries, several of which contain meat in some form or other; and the experiments at Pentonville were with dietaries of which meat formed a part; but I must now ask the attention of the Society to dietaries from which meat has been wholly excluded, and to three dietaries especially which contain no animal food whatever. The first of these exclusively vegetable dietaries is very interesting, inasmuch as it is a prison diet on which prisoners were fed for long periods, and weighed at the beginning and end of their sentences. The history of this dietary, and of its effects on the health of the prisoners, and on their weight, will be found in the Report of 1823, on the epidemic at Millbank. The facts are given on the authority of the Governor of the Devizes House of Correction. The dietary consisted of—

	Ounces per Week.
Bread .....	196
Potatoes.....	112
	---
Total solid food.....	308, and gruel 7 pints.
	---

On two days in the week a vegetable soup was substituted for the potatoes; but there was no meat whatever in this dietary, and no milk, or other animal matter. Nevertheless, the Governor was able to report that this dietary agreed well with the prisoners, that no loss of strength was noticed, and that no prison could be more healthy. And he added “There is not now, nor has there been, any “case of scurvy.” It should also be observed that this exclusively vegetable diet, having been adopted in an English prison, must have been strange to most of the inmates who, before they became prisoners, had doubtless been able to procure more or less of animal food and of meat. The prisoners had been kept on this diet for various periods up to eighteen months—many of them for six months and more; 292 prisoners, in various groups, were weighed on entering and on leaving the prison. Of 38 prisoners thus weighed after



periods varying from two weeks to six months, 27 were found to have gained, 2 to have lost, and 9 to have neither gained nor lost. The average gain in weight was 3 pounds. Two other prisoners, after eighteen months, had gained, on an average, 6 lbs., and 20 prisoners, confined for twelve months, had gained at the end of that period 5 lbs. on the average. Four other groups of prisoners, confined during six months, three months, two months, and one month, respectively, gained, on an average, 3 lbs., 3 lbs., 2 lbs., and 2 lbs.

Here then we have in favour of a bread—potato—and—gruel diet the most conclusive evidence. There was no loss of strength, an excellent state of health, no scurvy, and a most satisfactory addition to the weight of the prisoners. It should also be observed that there were among the prisoners several whose terms of imprisonment were sufficiently long to severely test any dietary.

Dr. Baly, in his paper in the “London Medical Gazette,” to which I have already had occasion to refer, gives an example of the same kind. It is that of the Stafford County Gaol, in which the weekly allowance of food consisted of—

Bread .....	196 ozs.
Potatoes .....	112 „
	<hr/>
Total.....	308 „
	<hr/>

with 21 pints of gruel, but no meat and no soup, and yet scurvy did not occur, its absence being verified by his own inspection of 70 prisoners confined in that gaol for periods of from three to six months.

In this case, also, a diet consisting wholly of vegetable food must have been new to the prisoners.

The third example of an exclusive vegetable diet is afforded by the eighth of the series of Glasgow experiments. The ten prisoners were fed for one month on 6 pounds of potatoes per diem; and at the end of that period had increased in weight, one with another, no less than 3½ lbs., or only half-a-pound less than the average gain in the first and second experiments of that series.

These are the only examples that I have happened to come across of a purely vegetable diet—a diet from which not merely meat, but every animal product, even milk, was excluded. But I have already, in this paper, given several examples of dietaries from which meat was wholly excluded, the only animal element being milk made into porridge with oatmeal, and into pudding with Indian meal. I ask your attention again to these exceptional dietaries, of which I am able to give you two notable examples. In the Report on military prisons (1861), the diet for military prisoners in solitary confinement for periods less than fifty-six days is shown to consist of—

	Ounces per Week.
Bread .....	56
Oatmeal ..	56
Indian meal .....	42
<hr/>	
Total solid food .....	154, with 10½ pints of milk.

and the penal class diet of Millbank Prison comprises---

	Ounces per Week.
Bread .....	84
Oatmeal .....	70
Indian meal .....	70
Potatoes .....	56
<hr/>	
Total solid food .....	280, with 10½ pints of milk.

The diet of military prisoners given above does not encounter objection on the part of the Governors or Medical Officers whose views are stated in the Report, and it may, therefore, be assumed to be sufficient for the support of robust men in confinement for periods less than fifty-six days; and this view receives strong confirmation from a passage in Dr. Tufnell's Report from Dublin; he says, "To the increase in the dietary, and especially its alteration, I have ever been, upon principle, opposed, because I found that I could, upon the old scale of dietary, maintain the men in the most perfect condition."

Of the sufficiency of the more liberal penal class diet of Millbank, not merely for prisoners undergoing short terms of imprisonment, but for those who are in close confinement, and under punishment, for many months together, I am able to furnish the most convincing proofs. This dietary was favourably reported upon by my predecessor, Dr. Baly, in 1858, and in my own report for 1859. It has stood the test both of experimental weighings and of more general observation of the state of health of the prisoners; and I have recently had occasion to report cases of men whose health has been maintained on this diet for seven, nine, eleven, fourteen, fifteen, seventeen, and eighteen months; and cases of women similarly kept in good health on a similar diet for nine, ten, eleven, fourteen, and eighteen months. The women who are on this diet are weighed every month, and the results are quite satisfactory.

I have no hesitation, then, in expressing an opinion in favour of the sufficiency of a dietary from which the meat element is wholly excluded. I have no doubt that health may be preserved, and with it the capacity for labour, on a diet consisting of milk and vegetable food; and I should have no hesitation in prescribing for all criminals under short terms of imprisonment a diet consisting wholly of bread



and potatoes. I think that the experience acquired at the Devizes House of Correction, at Stafford, and at Glasgow would be a complete justification for such a dietary.

I must now revert to the outbreak of scurvy and dysentery which occurred at Millbank in 1823, and endeavour to answer the important question whether that fatal epidemic ought to be attributed to the reduction which took place in the quantity of the food, or to the omission from that dietary of some important element. Now, the reduction effected in the original dietary of the prison went to the extent not merely of cutting down the quantity of bread, meat, and potatoes from a total of 304 ounces to one of 168 ounces per week; but the meat and potatoes were struck off altogether, except such small quantity of the juice and fibre of meat as was to be found in a broth containing one ox-head, and even less, to 100 rations. On a liberal estimate, the quantity of meat in the weekly rations of soup did not exceed 10 ounces for each prisoner. In order to ascertain whether the mere reduction in the quantity of the food could have been productive of such disastrous effects, I must again refer to the diet scales given in the earlier part of this paper. I find that the least liberal of the six pauper dietaries of 1836 allowed only 145 ounces of solid food, and 18 pints of liquid food, that the average of those dietaries only exceeded the reduced Millbank allowance in the solid elements by 5 ounces per week, while the liquid elements amounted only to 10 ounces in lieu of 21; that the minimum of the twelve pauper dietaries sanctioned by the Poor Law Board (doubtless after experience of their sufficiency) gives only two additional ounces of solid food per week, the liquid food amounting to only 11 ounces as against 21 of the Millbank dietary; that all the dietaries prescribed for the Scotch paupers in 1847, by Drs. Alison and Christison, fall greatly short of the Millbank reduced standard in their solid constituents; that the diet for soldiers under solitary confinement for less than 56 days also falls short of it both in the solid and in the liquid constituents; that the seventh of the Glasgow dietaries has 21 ounces less of solid food, and  $10\frac{1}{2}$  pints of butter-milk for 21 pints of gruel and broth; and lastly, that the consumption of agricultural and other labourers, according to Mr. C. Mott's inquiries, falls short of the Millbank reduced dietary by no less than 28 ounces. This last comparison, if the consumption of the labourer is correctly estimated, is the most important of all, inasmuch as of the 140 ounces said to be consumed by him 136 consist of bread, of which the quantity given at Millbank amounted to 168 ounces.

After making due allowance for the long terms of confinement to which the prisoners at Millbank were subject in 1822, I am still of opinion that the mere reduction in the quantity of the food would

not account for the outbreak of scurvy, even in a site so notoriously unhealthy as Millbank then was. Nor, with the experience of Devizes, Stafford, and Glasgow before us, would it be safe to attribute the outbreak to the omission of meat from the dietary. There still remains a possible explanation of the event to which the researches of the late Dr. Baly lend an air of probability. In the "London Medical Gazette," February 10th, 1843, Dr. Baly published a short paper "On the Prevention of Scurvy in Prisons, Pauper Lunatic Asylums, &c.," in which, after citing Sir Gilbert Blane and M. Julia Fontenelle, in favour of the anti-scorbutic virtue of the potato, whether raw or cooked, he proceeds to make the following important statement:—"In the spring of 1840, I found that scurvy was a disease of rather frequent occurrence amongst one class of prisoners in the Millbank Penitentiary, the military offenders sentenced by court martial; whilst amongst the other more numerous class of inmates, the convicts, it was never seen." This led Dr. Baly to a comparison of dietaries, of which I append the particulars in a tabular form, the arrangement only being altered from his own tables. I omit the column showing the dietary for women, as this paper must be understood to deal throughout with the dietaries of adult males only:—

	Military Offenders.			Convicts.
	First Three Months.	Second Three Months.	Over Six Months.	
	ozs.	ozs.	ozs.	ozs.
Bread .....	168	168	168	176
Meat .....	12	18	24	20
Potatoes .....	Nil	Nil	8	80
Cheese.....	Nil	Nil	Nil	4
Onion .....	Nil	Nil	Nil	One
Total solid food .....	180	186	192	284
	pints.	pints.	pints.	pints.
Rice-soup without vegetables.....	2	2	2	—
Pea-soup with vegetables .....	—	1	1	1½
Gruel .....	17	15	14	11
Broth .....	—	—	—	3
Total liquid food .....	19	18	17	15½

The following is an abbreviation of Dr. Baly's valuable commentary on these facts:—

Nearly all the cases of scurvy, he says, occurred in soldiers who were passing through the second three months of their confinement in the penitentiary, during which period not only had they very nearly as ample a supply of animal food as the convicts, male and



female, but they had as much soup seasoned with vegetables, as the female convicts, who, although undergoing far longer terms of imprisonment, yet were free from scurvy. This exemption of the convicts from the disease, could, therefore, only be attributed to their weekly diet containing 5 lbs. of potatoes and an onion. In order to afford to the soldier a larger supply of vegetable food, Dr. Baly suggested the substitution for the rice-soup, which contained no fresh vegetables, of pea-soup with vegetables. The quantity of soup containing succulent vegetables was thus made to exceed the quantity given to the convict, and yet scurvy continued to appear among the soldiers. It prevailed to nearly, if not quite, the same extent after the change of diet as before ; and it was evident that the quantity of vegetables usually contained in two or three pints of pea-soup given weekly was inadequate to prevent the occurrence of scurvy. Dr. Baly accordingly recommended that the soldiers, as well as the convicts, should have 1 lb. of potatoes with each dinner of meat. The soldiers thus came to have 2 lbs., or 32 ounces of potatoes every week during the first three months of their imprisonment, 3 lbs. during the second three months, and 4 lbs. after the expiration of six months. This addition to the dietary of the military prisoners was made in January, 1842, and not a single case of scurvy occurred up to February 10th, 1843, the date of Dr. Baly's paper. Dr. Baly then proceeds to give a short sketch of the outbreak of scurvy and dysentery at Millbank in 1823 ; and, after stating that he deems it "unnecessary to argue that the want of animal food could not have produced the scurvy," and showing that the reduced dietary "was not deficient in vegetable constituents, except as regarded the potatoes," gives it as his opinion, "that the withdrawal of the supply of potatoes was, in all probability, the cause of that part of the epidemic which was constituted by the scurvy ;" and this inference he strengthens by the remarkable statement, that, since the date of the outbreak of scurvy and dysentery, the diet of the convicts "has contained an abundant supply of potatoes, and scurvy has never again attacked them ; although other forms of disease, which were described as parts of the epidemic of 1823, namely, the fever, dysentery, and nervous affections, have frequently re-appeared."

Dr. Baly then fortifies his opinion thus expressed by citing the case of the Oxford County Gaol, in which a diet, consisting of bread 168 ounces, meat 4 to 12 ounces, and 14 pints of gruel per week, but with no regular allowance of vegetables, "potatoes or green vegetables being given only occasionally on Sundays, when the prison garden would furnish them," issued in the production of scurvy ; and the case of the Northampton County Gaol, in which scurvy, having arisen under a dietary of bread, soup, and gruel, disappeared after the addition to it of 4 lbs. of potatoes weekly. Other

analogous facts are cited, and especially the striking case of the Stafford County Gaol, which I have already noticed, where, under a liberal allowance of bread, potatoes, and gruel, but no meat, no soup, and no milk, scurvy did not show itself.

It is worthy of remark, that the diet of military offenders for the first three months approximates very closely to the reduced dietary at Millbank. The quantity of bread is exactly the same, the 12 ounces of meat is little more than the equivalent, in the solid form, of the 10 ounces of meat in the soup at Millbank, while the two pints of rice-soup, without vegetables, and the 17 pints of gruel would probably contain less than the 14 pints of gruel and the 7 pints of soup after the supposed removal from it of the 10 ounces of meat.

The scurvy, which was a new disease at Millbank in 1822, occurred therefore under the long-continued use of a diet differing little from the military diet of the first three months, and not falling greatly short of that of the second three months. The condition of the prisoners in Millbank, in 1822, resembled that of the soldiers in 1840, in the total omission of the potato, the site of the prison, the season of the year, and the scurvy.

It is probable, therefore, that the epidemic scurvy which associated itself with the epidemic dysentery of Millbank as a mixed epidemic, in 1823, was not due to the mere reduction in the quantity of food, nor to the omission of solid meat from the dietary, but to the total exclusion of the potato element.

In this outbreak of disease, therefore, we have no clue to the solution of the question of sufficient or insufficient dietaries. It is obviously quite possible that the reduction of the quantity of bread from 168 ounces a week, or a pound and a half per diem, to 112 ounces a week, or a pound per diem, and the substitution for the half-pound of bread of the same quantity of potatoes, would have saved the prisoners from the scurvy, and the Government from the anxiety, trouble, and cost which the sad and perplexing epidemic of 1823 entailed upon it.

### III.—*Existing Prison Dietaries.*

I must preface what I have to say on the subject of existing prison dietaries by reminding the Society that there are two distinct classes of prisoners to be provided for—the prisoners in our county gaols who are sentenced for periods varying from a few days to less than three years, and the convicts in our Government establishments whose sentences exceed three years. For the first class, it was necessary not only to prescribe dietaries for sentences of different length, but also to distinguish between sentences with and sentences without hard labour. In respect of the second class, a distinction was required to be made between that first and shorter part of the



sentence which is spent at Millbank, Pentonville, Leicester, or Wakefield, in separation, or in separation followed by association, and that larger part which is spent at public works (at Portland, Chatham, and Portsmouth, or at Dartmoor) in associated labour. I shall present these several dietaries in separate tables, and make such observations upon them as may throw light upon the curious varieties and anomalies which they present.

The existing dietaries for the county prisons date from the year 1843, when Sir James Graham, then Her Majesty's Secretary of State for the Home Department, addressed a letter to the Chairmen of Quarter Sessions, in which he adopts the recommendations of the Inspectors of Prisons. These recommendations, it should be stated were not unanimous, for one of their number, Mr. F. Hill, emphatically dissents from the received doctrine that the depressing effect of imprisonment on health could be counteracted by a liberal allowance of food; and he expressed his opinion on the contrary, "that a depressed state of the mind weakens the digestive powers, and makes them incapable of receiving even so much food as when the mind is cheerful." It was under the influence of an opposite feeling, and after consultation not only with the Prison Inspectors, but with medical men of the greatest eminence, possessing the advantage of long experience, that these dietaries were framed.\*

The dietaries recommended for the use of county prisons, as given in the Return for 1857, are shown in the following table:—

*County Gaols and Prisons.*

Per Week.	Without Hard Labour.				With Hard Labour.			
	Class 1. Less than 7 Days.	Class 2. More than 7 Days, and not more than 21 Days.	Class 3. More than 21 Days, and not more than 4 Months.	Class 4. More than 4 Months.	Class 2. More than 7 Days, and not more than 21 Days.	Class 3. More than 21 Days, and not more than 6 Weeks.	Class 4. More than 6 Weeks, and not more than 4 Months.	Class 5. More than 4 Months.
Bread .....	ozs. 112	ozs. 168	ozs. 140	ozs. 168	ozs. 168	ozs. 140	ozs. 168	ozs. 154
Potatoes .....	—	—	64	32	—	64	32	112
Meat .....	—	—	6	12	—	6	12	16
Total solid food .....	112	168	210	212	168	210	212	282
Soup .....	Pints. —	Pints. —	Pints. 2	Pints. 3	Pints. 1	Pints. 2	Pints. 3	Pints. 3
Gruel .....	14	14	14	14	14	14	14	11
Cocoa .....	—	—	—	—	—	—	—	3
Total liquid food .....	14	14	16	17	15	16	17	17

\* For the report of the inspectors, with the letter of Sir James Graham, see "Pereira on Diet," p. 491, and for voluminous details of the dietaries of prisoners and convicts, see Parliamentary Report, No. 154, 1857.

It is not easy to discover the principles on which this table was constructed; for though the quantities of meat and soup, and the aggregates of solid and of liquid food, increase with the length of the sentences, the bread and potatoes display very curious fluctuations. And though the transition from a sentence of less than four months, to one of more than four months, is marked in the case of prisoners not sentenced to hard labour by an increase of 2 ounces of solid, and 1 pint of liquid food per week, the transition from the shorter to the longer period, in the case of prisoners sentenced to hard labour, is marked by an increase of 70 ounces of solid food, and a substitution of 3 pints of cocoa for 3 of gruel; so that the alleged depressing effect of prolonged imprisonment without hard work, may be said to be represented by 2 ounces of solid and 1 pint of liquid food per week, while the wear and tear of hard labour is supplied by 70 ounces of solid food. It is also worthy of remark that while prisoners not sentenced to hard labour have only half the quantity of potatoes after four months, those sentenced to hard labour have, after the same period, upwards of three times the quantity of this wholesome vegetable. I have some further observations to make on the figures in the last column of this table, but I reserve them till I shall have presented the remainder of the dietary tables.\*

The table which follows, exhibits the ordinary diets of the convict prisons for Pentonville, Wakefield, and Millbank, in which the separate system of imprisonment prevails during the whole of the prisoners' sojourn in them, or during some months at the commencement, the remainder being passed in association; for Portland, Chatham, and Portsmouth, at which the men are employed in outdoor labour at such work as is required in our dockyards and arsenals; and for Dartmoor, at which a portion only of the prisoners are engaged in farming and gardening operations, admitting of comparison, in point of exertion, with the labour required at Portland, Portsmouth, and Chatham, most of the prisoners when first sent to Dartmoor being disabled or deformed in body, weak in health, or of feeble intellect.

\* It may be well, in this place, to show to what extent the county gaols and prisons have followed the suggestions of the Home Office, made to them in 1843. Between forty and fifty of the whole number have conformed to the prescribed dietaries, but a still larger number have adopted dietaries of their own, and these display every possible difference in the proportion of the elements of which they consist. In the element of bread for instance, the quantity varies between a minimum of 30 and a maximum of 224 ounces; in that of meat, between nil and 25 ounces; in that of potatoes, between 24 and 112; and in the total of solid food, between 100 and 340 ounces. But where the quantity of these articles of food is smallest, the dietary is enriched by such additions as milk porridge, Indian meal pudding made with milk, and suet pudding.



*Convict Establishments—(Ordinary Diet).*

Per Week.	Pentonville.	Wakefield.	Millbank.	Portland.	Portsmouth and Chatham.	Dartmoor.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Bread .....	140	140	154	150	189	165
Potatoes .....	112	112	112	112	112	112
Meat .....	28	28	35	39	39	39
Suet pudding	—	—	—	30	—	32
Total solid food .....	280	280	301	331	340	348
	Pints	Pints.	Pints.	Pints.	Pints.	Pints.
Soup .....	3½	3½	3½	3	3	3
Gruel .....	7	7	7	7	7	4
Cocoa .....	5¼	—	5¼	3	7	10
Milk .....	—	5¼	—	—	—	—
Tea .....	—	—	—	4	—	—
Molasses .....	—	—	—	3	—	—
Total liquid food .....	15¾	15¾	15¾	20	17	17

This table, too, is full of anomalies and inconsistencies, some of which must remain even after the explanations now to be given.

The Pentonville dietary, as already explained, was adopted as the direct result of experiments not free from objection. The dietary at Wakefield is the same dietary with a single exception. The history of the Millbank dietary is less perfectly known. All that I have been able to ascertain with certainty is, that in the year 1840, the dietary consisted of bread, meat, potatoes, and cheese, with one onion, pea-soup, broth, and gruel, in the quantities stated in the last column of the table at p. 270; but that at some period previous to 1854, the cheese was omitted, the meat and potatoes increased, and the bread diminished, that prior to the outbreak of cholera in 1854, meat was given five times a-week and soup twice, but that during the prevalence of the cholera Dr. Baly recommended the substitution of meat for soup on the remaining two days in the week, and that, on its subsidence, he still caused the same altered diet to be retained; and further, that he objected to the reduction of the 154 ounces of bread to the 140 ounces of Pentonville, alleging as his reason the unhealthy site of Millbank. But in comparing these two dietaries with each other it ought to be understood that the soup of Pentonville is the meat-liquor strengthened by additions of meat and vegetables, while the soup of Millbank is little better than the liquor in which the meat is boiled.

Of the three dietaries of Portland, Portsmouth and Chatham, and Dartmoor, it is impossible to give any rational account. The

strongest and most robust prisoners are sent to Portland; those who are less vigorous and robust to Portsmouth and Chatham; and those who are fit only for light labour to Dartmoor, to which place also are sent the maimed, crippled, and deformed, the scrofulous and the consumptive, and men of weak minds. And yet the dietaries of these three prisons, all largely in excess of Pentonville and even of Millbank, seem to be framed in a spirit of contradiction. The robust prisoner at Portland gets less food than the less vigorous inmate of Portsmouth or Chatham, and this last gets less than the most effective of the invalids of Dartmoor. But ample as the ordinary diet at these convict establishments is, it has not been deemed sufficient for the whole period of confinement; for the tables of 1857, add an "increased" diet in the case of Portland, and in all the prisons additions to the dietaries for men in the third and fourth stages. The particulars of these several dietaries are shown as accurately as possible, consistent with brevity, in the subjoined table:—

*Convict Establishments—(Ordinary and Increased Diets, with Additions).*

Per Week.	Portland.				Portsmouth and Chatham.			Dartmoor.		
	Ordinary.	Increased.	Third Stage.	Fourth Stage.	First and Second Stages.	Third Stage.	Fourth Stage.	Ordinary (Hard Labour).	Invalid (Light Labour).	Third and Fourth Stage.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Bread .....	150	201	204	204	189	192	192	165	168	169
Potatoes .....	112	112	112	112	112	112	112	112	112	112
Meat .....	39	39	39	39	39	39	39	39	24½	39
Suet pudding .....	30	30	30	35	—	—	8	32	—	32
Cheese .....	—	—	2	2	—	2	2	—	—	2
Total solid food .....	331	382	387	392	340	345	353	348	304½	354
	Pints.	Pints.	Pints.	Pints.	Pints.	Pints.	Pints.	Pints.	Pints.	Pints.
Soup .....	3	7	7	7	7	7	7	3	7	3
Gruel (or tea*) .....	7	7*	7*	7*	7	7*	7*	4	7	—
Tea .....	—	4	4	4	—	—	—	—	—	4
Cocoa .....	7	3	3	3	7	7	7	10	7	10
Beer or porter .....	—	—	½	½	—	½	½	—	—	½
Total liquid food .....	17	21	21½	21½	21	21½	21½	17	21	17½

In order to give a complete view of these dietaries it would be necessary to enter into details inconsistent with the narrow limits of this paper. I must, therefore, content myself with remarking that as much anxiety seems to have been shown to provide the convicts with variety as with abundance of food. The undue monotony of the Millbank dietary, with its five ounces of boiled beef every day,



is exchanged for the opposite extreme of variety, and beef alternates with mutton, and baked meat with boiled, while tea takes the place of gruel, and one pudding of another. Even the "invalid diet" of Dartmoor, for convicts employed at "light labour," is more liberal than the ordinary diets of Millbank and Pentonville. Dietaries so ample, so varied, and so different, are only to be accounted for on the supposition that additions made to meet occasional and transitory emergencies, or to silence the importunities of prisoners, have been retained through forgetfulness, or from aversion to change. That such causes are in operation, the facts already stated with reference to Millbank Prison will show.

There is also reason to believe that the example of Millbank has been brought to bear on the county prisons; for the dietary recommended by the Home Office in 1843, for prisoners sentenced to hard labour for periods exceeding four months (Class 5), is in many respects identical with the ordinary diet at Millbank. The quantities of bread and potatoes, and the distribution of the bread over the three meals, are the same in both dietaries, and in both meat is given on certain days in the week and soup on others.\*

It will be seen that, throughout this communication, I have attached great importance to the dietary history of Millbank Prison. I have done so, not merely because the physician who holds the appointment of medical superintendent is usually consulted by the Government, on matters relating to the health of its officers and of the convicts generally, and particularly respecting dietaries, but because the epidemic of 1823, and the formerly unhealthy state of the prison, co-operating with the opinion entertained by John Howard, that the depression caused by imprisonment necessitates a liberal diet, have exercised a marked influence on the selection of all our prison dietaries. Millbank Prison has thus become the centre of a cautious and timid policy in matters of diet, and the cause of an unnecessary expenditure, of which the amount may be guessed at by the aid of an assertion which I believe I am justified in making, that

\* It will be seen that in 1840, when scurvy prevailed among the military prisoners at Millbank, the ordinary diet of the convicts consisted of 176 ounces of bread, 20 ounces of meat, and 80 ounces of potatoes, with 4 ounces of cheese and an onion. Now it appears highly probable that, impressed as he was with the value of the potato as an anti-scorbutic, Dr. Baly, soon after this date, recommended an increase of the potatoes to 112 ounces, and of the meat to 25 ounces, reducing the bread from 176 to 154 ounces, and suppressing the 4 ounces of cheese and the onion, so as to establish the dietary in use at the advent of the cholera in 1854. If this conjecture be well founded—if the allowance of bread and potatoes recommended for the county prisons was really copied from the Millbank dietary, the quantity of meat being somewhat reduced—then it follows that an allowance of bread exceeding that in use at Pentonville by 14 ounces a-week, and justified only by the alleged unhealthiness of Millbank, has been extended to such of the county prisons as have adopted the recommendations of the Home Office.

the extra supply of bread retained in consequence of the alleged unhealthiness of the site, and the changes made in 1854, during the prevalence of the cholera, and solely on account of the cholera, have not cost the Government, on an average of cheap and dear years, less than 1,000*l.* per annum.

As Millbank Prison is now, and has been for the four years that I have held office in it, free from every malady which can be traced to a local cause, one of the reasons for an excessive dietary no longer exists; another reason passed away with the epidemic cholera of 1854; and the only one that now remains is the theory which attributes to imprisonment itself, and especially to solitary confinement, a depressing influence, for which a liberal diet is in some sense a remedy.

Now this theory is based upon the two distinct assumptions that imprisonment exercises a depressing effect upon the mind, and through it, upon the body, and that this depressed and enervated condition necessitates a liberal diet.

The first of these assumptions is justified by observation, but the mental depression and consequent loss of strength are, according to my own observation, much less considerable than is usually supposed. They are certainly not such as must have existed in the days of John Howard. Perhaps one prisoner in a thousand will exhibit great grief and continued depression, and one or two others a marked loss of spirits; but the great majority, including even men of education, who have lived previous to their imprisonment in luxury and refinement, adapt themselves to their new circumstances in a very remarkable manner. The favourable rate of mortality among the convicts, the absence of diseases usually ascribed to mental anxiety and depression, and the small number of cases of unsoundness of mind which can be traced with any show of probability to the influence of imprisonment, concur, with the appearance of the prisoners themselves, to cast a doubt on the soundness of the popular belief, which ascribes to imprisonment a highly depressing effect. But, though not depressing to the degree which is usually supposed, imprisonment must affect the mind with a certain listlessness which in and out of prison is inseparable from the want of those stirring occupations to which the necessities of some and the ambition of others give rise. But as for the *ennui* which afflicts the rich man, destitute of a fitting occupation, no sensible physician would prescribe a highly nutritious diet, so in the case of the prisoner, afflicted with the same want of spontaneous occupation, it may admit of doubt whether a like prescription would be reasonable or right. At any rate, it may be safely affirmed that the theory under consideration is little better than a prevalent opinion, not undeserving of respect, but quite open to discussion. And even if we assume that mental



depression and bodily lassitude demand a nutritious diet, we ought not to forget that all the other circumstances which surround the prisoner are exactly such as every well-informed physician, and every man of sense must admit as reasons for reducing the supply of food. The prisoner spends more time in bed than the working man does; he is warmly clad, lives and sleeps in a warm atmosphere, and is protected from the weather; he is not worked beyond his strength, he has time for his meals, he has no pressing anxieties, or urgent claims. His wear and tear of body and mind are reduced to the lowest point. These, then, are reasons for a moderate dietary scale, which must, in any case, be set off against the one solitary argument in favour of a liberal dietary. It is a very curious circumstance that Dr. Copland Hutchison, the Medical Superintendent of Millbank Prison in 1822, believed that the then ordinary diet of the prisoners, which is somewhat less nutritious than that now in use, was excessive, and injurious to the convicts, and that he founded his opinion on the prevalence among them of plethora and the diseases arising out of fulness of habit; and yet neither my predecessor, Dr. Baly, nor I myself, have had any experience of those diseases, nor any such reason to condemn the diet of the present day as excessive. Now, as the convicts of 1822 were confined in a prison at that time certainly unhealthy, for much longer terms than the convicts of the present day in a very healthy prison, there is a fair presumption that the depressing effects of imprisonment, even when reinforced by an unhealthy site, are rather exaggerated than otherwise by a liberal dietary. The liberal dietary of 1822 was thought to have produced disease in convicts confined for long periods in an unhealthy prison; the equally liberal diet of 1863 seems to preserve in health the convicts shut up for shorter periods in a healthy one. Might not a reduced diet have improved the health of the inmates of Millbank in 1822? and might not the like reduction be consistent with the maintenance of health and vigour in the same class in 1863?

I shall now bring this communication to a close by stating, as distinct propositions, the results to which the foregoing inquiry has led me:—

1. That though the elementary constituents of a wholesome and nutritious diet, and the articles of food which yield them, are ascertained with sufficient accuracy, the quantity of food required to support any given body of men in health and efficiency, is not, and cannot be, precisely determined.

2. That the difficulties which attach to the selection of dietaries adapted to the peculiar conditions and circumstances of different bodies of men, make themselves felt to an extreme degree in the case of prisoners.

3. That the very circumstance of large bodies of men differing

widely from each other in age, constitution, and occupation, being supported in apparent health and vigour on the same dietary, proves conclusively that food may be taken in excess of the real wants of the frame without producing effects which shall attract the notice even of the most careful and watchful observer.

4. That we possess no conclusive tests of sufficient or insufficient dietaries; and that the test of weight, which is the most precise, cannot be safely applied till we shall have obtained more accurate information than we now possess respecting the causes, other than food, which affect the weight of the body.

5. That the value of the experiments made at Pentonville Prison in 1842 is impaired partly by the want of this information, and partly by the want of scientific exactness.

6. That we possess conclusive evidence of the sufficiency of a diet from which meat is wholly excluded, and even of a diet consisting entirely of vegetable matter; that such a diet would probably suffice for able-bodied paupers, and even for prisoners sentenced to hard labour, and for convicts employed at public works; and that this is true of men previously accustomed to animal food.

7. That the potato is an important element in our dietaries, and that its omission has probably been the true cause of outbreaks of scurvy which have been attributed to a mere reduction in the quantity of food.

8. That the existing prison dietaries present many curious anomalies very difficult of explanation, except on the supposition that additions made for temporary reasons, such as a wish to satisfy the importunities of prisoners, or a transitory departure from health or outbreak of disease in a small section of the prisoners, have become permanent through inadvertence, or from an aversion to change.

9. That the dietaries of our county prisons, for periods exceeding four months, and all the dietaries of our convict establishments, are greatly in excess of the dietaries of able-bodied paupers, and probably in excess of the requirements of the prisoners themselves.

10. That our prison dietaries have been framed under the influence of an exaggerated estimate of the depressing effect of imprisonment, and of an opinion, probably ill-founded, that the physical effects of such depression can be counteracted by increased supplies of food.

11. That our prison dietaries have also been framed under the influence of a timid feeling, originating in misconceptions as to the true cause of the epidemic of Millbank Prison, but especially in the belief that it was due to a reduction in the quantity of food.

12. That some reduction in the dietaries of our convict establishments might be made with safety and economy; and that further reductions would probably be justified by well-devised experiments.



RECENT FINANCIAL *and* TAXATION STATISTICS *of the* UNITED STATES. *By* CORNELIUS WALFORD, *Barrister-at-Law, and Member of the Council of the Statistical Society.*

[Read before the Statistical Society, 17th March, 1863.]

PART THE SECOND.

[Continued from p. 167.]

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THE first section of this paper was chiefly confined to an outline of the material progress of the United States during the first eighty years of its history. The present section will deal with the revenue, expenditure, and public debt during the same period; and the concluding section will trace the influence of the present disastrous war upon the finances and development of the country.

I.—*United States' Revenue.*

The first distinct traces of the United States' revenue occurs at the close of 1791, or eight years after the termination of the War of Independence. It appears there had been received into the Treasury between the 4th March, 1789, and the 31st December in the year named, a total of 2,042,005*l.*; but as 1,158,222*l.*, or rather more than half the amount, is stated to have been raised on loans and Treasury notes, we have really in the shape of revenue only 883,783*l.*, of which 879,894*l.* was drawn from customs, and the balance, 3,889*l.*, was from miscellaneous sources.

It has been the practice, from the formation of the Federal Government down to the present time, to provide for any excess of expenditure over ordinary revenue by means of loans and Treasury notes, authorised by specific Acts of Congress, and to include the amounts received from these sources in the receipts of the year; therefore, "income" and "revenue" do not mean the same thing, as the above figures serve to show.

The following is the decennial progress of both income and revenue :—

Decennial Periods.	Total Income.	Of which was Revenue.
	£	£
1792 .....	1,748,153	733,992
1800 .....	2,490,256	2,169,769
'10 .....	2,428,841	1,876,842
'20 .....	4,176,298	3,568,133
'30 .....	4,968,823	4,968,823
'40 .....	5,006,438	3,888,529
'50 .....	9,529,877	8,718,577
'60 .....	15,368,281	11,212,921

The only period in the table, at which the figures correspond, is 1830. Between the years 1826 and 1836, the United States' Government not only contracted no loans, but paid off its former debt.

The sources of revenue for the 72 years from 1789 down to 1861 have been classed as follows :—

1. Customs.
2. Sale of Public Lands.
3. Miscellaneous.

And I propose to examine each of these sources separately. The fourth—loan and Treasury notes—are not dealt with here for reasons stated.

## II.—*Customs.*

The first tariff under which customs' duties were to be collected, appears to have come into operation on the 4th July, 1789, followed by others, either in the way of amendment or substitution, in 1790 and 1791, since which constant, special, and amended tariffs have been adopted.

The chief articles upon which the more recent customs' duties have been levied are woollen, cotton, and hempen goods; iron and iron manufactures; sugar, hemp unmanufactured, salt, and coals. From these eight articles, the sums collected in 1860 amounted to 5,224,075*l.*, or rather more than half the entire customs' duties of that year.

The revenue from customs has advanced from 688,614*l.* in 1792, to upwards of *ten millions* in 1860; the highest figures ever reached being 12,844,818*l.* in the financial year ending 30th June, 1854.

The following table shows the decennial progress, the intermediate fluctuations having been very considerable :—



		£
In 1800 the customs realised .....		1,816,186
„ '10 .....	„	1,716,661
„ '20 .....	„	3,001,122
„ '30 .....	„	4,384,478
„ '40 .....	„	2,699,900
„ '50 .....	„	7,933,537
„ '60 .....	„	10,637,502

The total receipts from customs since the establishment of the Federal Government down to the 1st of July, 1862, have been 315,030,515*l.*, or about *four millions and a-half* per annum.

It is now a matter of history that one of the chief causes of the present rupture between the two great parties in the United States, known here as “North” and “South,” arose out of the adoption by the Northern party of a new scale of customs’ duties, designated the “Morrill Tariff.” The avowed object of that measure was the encouragement of home manufactures, by taxing those imported from other countries. The South, having no manufactures to foster, advocated the policy of Free Trade, and protested against the restrictions of this measure, as pernicious and intolerable.

I cannot here follow the disagreement and its consequences, but I will give one instance of the operation of this new tariff. The South want railway iron in large quantities to make railways for bringing down cotton from the interior; the duty upon this one article, under the Morrill tariff, is 70 per cent. upon the cost of manufacture here.

### III.—*Sale of Public Lands.*

There is an interest attaching to this branch of the United States’ revenue which reaches very much beyond mere financial results.

In Europe, and in England especially, where every acre of land has had an ownership almost from the date of the Norman Conquest, it is very difficult to realise the idea of any considerable portion of the state revenue being raised by the sale of public lands; although it is true that our Government has had, and used, such a power in Australia, New Zealand, and Canada, and, I trust, will soon exercise it in India. But the power to sell lands can only be of extensive advantage in conjunction with the collateral circumstances which induce people in large numbers to seek to purchase it; and in this latter respect the United States have long stood pre-eminent.

It appears that the value of this element, as a means of aiding the revenue, was foreseen very early after the formation of the Union; for, by an Act, passed 20th May, 1785, the price of public lands was fixed at one dollar (4*s.* 2*d.*) per acre.

We find no trace of any proceeds in the Treasury until the year 1796, when the former act was superseded, and the price fixed at two dollars per acre ; but this price is not, I believe, strictly adhered to.

The receipts in the year last named was only 967*l.*; but in the next year, 1797, they reach 16,708*l.*; they again relapse, but in 1801 recover, and produce 33,545*l.*, and from that date go on progressively as follow :—

Decennial Periods.	Annual Receipts.	Totals up to the Year 1800, afterwards for Decades.
	£	£
1800 .....	88	20,156
'10 .....	139,309	913,577
'20 .....	327,174	3,167,263
'30 .....	465,871	2,777,609
'40 .....	658,457	14,104,232
'50 .....	371,978	3,561,301
'60 .....	355,711	9,165,312
'61 .....	174,131	174,131

The total revenue credited in the Treasury accounts from this source, during the sixty-six years ended with 1861, is 35,163,592*l.*, being at the rate of more than *half a million* per annum.

The fluctuations in the annual land sales have been so extreme that the last table, which in its total results includes them, yet fails to convey an adequate idea of their extent, and, of course, leaves their causes unrecorded. The following are the aggregate sales for the four last decennial periods :—

Ten Years terminating	Sales of Land, reckoned in Acres.
1830 .....	9,627,666
'40 .....	62,599,871
'50 .....	16,269,421
'60 .....	52,385,782

The decade terminating 1840 embraces six memorable years in the history of the United States, when not only were no *new loans required, but a debt, which at one time (1816) had reached twenty-five millions, was entirely paid off.*

The statistics of the period afford a remarkable instance of cause and effect.



Years.	Public Debt.	Land Sales in Acres.
	£	
1830.....	9,713,081	1,880,019
'31.....	7,824,638	2,804,745
'32.....	4,864,447	2,411,952
'33.....	1,400,207	3,856,227
'34.....	952,016	4,658,218
'35.....	70,257	12,564,478
'36.....	58,217	20,074,870

From this date the public debt steadily increases, and the land sales steadily decrease.

*The conclusion, which I think may be deduced in reference to the land sales, is that they will only increase in a rapid ratio under the prospect of light burdens in the shape of taxes ; remove that inducement, and the sales will rapidly subside.*

The first real impetus to immigration to the United States is coincident with these facts, and therefore confirms this view :—

	Immigrants.
10 years ending 1830 .....	120,117
10    ,,       '40 .....	530,878
10    ,,       '50 .....	1,427,337
9     ,,       '59 .....	2,814,604

Other influences than those I have named are no doubt at work, but I believe that the true secret of progress lies where we have indicated, as the events of the next few years will develop even more fully than the past.

The more immediate causes of the extensive land sales in the decade ending with 1860, I believe to have been the rapid extension of the railway system and the discovery of gold in California; but I cannot stay to elucidate them at this point. Latterly the largest sales occurred in 1845, being no less than 15,729,524 acres; the highest figures since 1836.

	Acres.
We have shown the total land sales down to } 1860 to have been.....	153,928,547
In addition to which the Government has made the following free grants, viz. :—	
To schools .....	67,736,572
,, internal improvements.....	10,897,313
,, individuals .....	279,972
,, seats of government .....	50,060
,, military services .....	44,109,979
,, salaries to States .....	432,325
,, Indian reserves .....	3,400,725
,, private claims .....	8,923,908
,, swamp lands granted to States .....	21,948,916
,, railroads .....	25,463,993
Making a total of .....	337,152,310

And there remained unsold, at the close of 1860, upwards of 1,088 million acres (or more than eighteen times the surface of Great Britain), being threefold greater than all the sales and grants already made.

IV.—Miscellaneous Revenue.

The revenue from miscellaneous sources has amounted during 73 years to 19,061,064*l.*, being something less than a quarter of a million per annum; but as I have no details of the way in which it is made up, I can offer no special comment upon it, beyond the fact that it appears to fluctuate very considerably.

The following table will show the amount annually at progressive decennial periods, and it also shows the total receipts of each decade :—

Decennial Periods.	Annual Amounts.	Total Receipts to 1800, and afterwards during Decades.
	£	£
1792 .....	45,377	—
1800 .....	353,474	1,629,472
'10 .....	20,871	1,106,207
'20 .....	239,837	6,035,674
'30 .....	118,473	1,363,896
'40 .....	530,171	5,056,474
'50 .....	412,861	1,199,155
'60 .....	219,707	2,295,582

V.—General Expenditure.

The public expenditure in the United States, as in most other countries, has had of late years a very decided tendency to increase.

In the official documents issued by the Government it is classified under the following heads :—

- 1. Civil List, including Executive, Diplomatic, Consular, and Miscellaneous.
- 2. Department of the Interior, relating to Indians and Pensioners.
- 3. War Department.
- 4. Navy Department.
- 5. The Public Debt :—
  - (1.) Interest.
  - (2.) Redemption.

I shall first deal with the expenditure, exclusive of that relating to the public debt, as this last-named expenditure will be considered separately.

The entire expenditure at the commencement of the Government (excluding, as we have said, all relating to the public debt) was, for the two years and nine months between 4th March, 1789, and 31st



December, 1791, 383,918*l.*, being at the rate of one hundred and thirty thousand pounds sterling per annum.

In 1792, it was 375,580*l.* By 1795 it had increased to 870,131*l.*, and it has since progressed decennially as follows :—

Decennial Periods.	Annual Amounts.	Total previous to 1800, and afterwards Receipts during Decades.
	£	£
1800.....	1,482,274	7,447,811
'10.....	1,062,216	10,965,312
'20.....	2,626,906	38,131,455
'30.....	2,645,906	24,411,471
'40.....	4,827,984	48,326,469
'50.....	7,433,198	61,380,868
'60.....	12,002,022	111,993,465
'61.....	12,071,390	12,071,390
Total .....	—	314,728,241

The total expenditure being nearly 315 millions, or about 4½ millions per annum ; 1861 shows a larger expenditure than any previous year.

VI.—The Civil List.

The returns at command do not discriminate the heads of expenditure, until the later years.

	£
In 1841 the expenditure was .....	1,298,176
„ '50 „ .....	2,967,945
„ '60 „ .....	6,385,111
„ '61 „ .....	4,637,440

I have analysed the expenditure for the last-named year and find the following details :—

Civil list proper, including—	£	£
Expenses of Congress .....	563,986	
Salaries and expenses of president and officers of state ....	376,471	
The judges' courts, &c. ....	136,964	
Together .....	—	1,231,239
Foreign intercourse, including—		
Salaries of ministers .....	59,068	
„ consuls, &c. ....	51,026	
Together .....	—	228,594
And under the head of miscellaneous .....	—	3,177,606
Giving the total .....	—	4,637,439

These miscellaneous items give an insight into what may be termed the *inner official life*, not altogether unworthy of notice.

Thus, amongst expenses of "Foreign Intercourse," there is this charge:—"For expenses relative to suitable acknowledgments to be made to British naval authorities in Jamaica, 600*l.*;" and another—"Compensation to commissioner to run and mark the boundary between the United States and British Possessions, bounding on Washington territory, 22,000*l.*"

One of the drawbacks, incident to a large and unsettled country, is noticeable in the charges incident to the surveys. In the year now under review (1861) the total charge for inland and coast surveys is no less than 155,683*l.*

Then there is a charge of 182,322*l.* for taking the eighth census, in 1860, and two other items of curious interest, viz., "For suppression of the slave trade, 34,208*l.*," and "For removing to the coast of Africa the captured Africans, 29,900*l.*"

The fund applied to the encouragement of patents amounted to 55,572*l.*, to which must be added 2,520*l.* for increasing the Patent Office (one of the finest buildings in America); and "for the relief of sundry individuals, 74,917*l.*"

#### VII.—*Department of the Interior.*

There is no especial interest about this department, except that it appears to furnish comfortable pensions to a great number of persons.

The total expenditure of the department, for the financial year ending 30th June, 1861, was 752,004*l.*, the items being as follows:—

	£	£
Indian department .....	—	539,985
Pensions, military .....	175,293	
„ naval .....	32,280	
	—	207,573
And relief of sundry individuals .....	—	4,439
		—
Making together the total named....	—	752,004

I have no means of knowing whether the expenditure in this department has shown signs of variation. It is, however, all included in the general expenditure of the Government, which has been already dealt with.

#### VIII.—*War Department.*

The War Department of the United States is charged, not simply with the costs of actual warfare, but also with the expenditure upon various public works, which are placed under the direction of that department.

I can find in none of the American public documents any early



records of the expenditure under this head,—nothing earlier than 1841. The results decennially from that date are :—

Periods.	Annual Amounts.	Total Expenditure during Decades.
	£	£
1841 .....	2,740,976	—
'50 .....	2,560,352	31,518,030
'60 .....	3,281,953	39,068,156
'61 .....	4,596,230	—

The details of the expenditure for the year ending 30th June, 1861, are as follows :—

For the army proper, 3,595,801*l.*; for military academy, 35,631*l.*; for army and equipping militia, 37,917*l.*; for armouries, arsenals, &c., 332,462*l.*; for fortifications and other works of defence, 201,976*l.*; for construction of roads and bridges, 15,375*l.*; for improvement of river harbours, &c., 33,431*l.* Then there is brought into this account a charge for extension of the capitol of the United States, 86,869*l.*; and for dome of said capitol, 32,999*l.*; for extension of general post office building, 17,200*l.*; for Washington aqueduct, 50,294*l.*; and for relief of sundry individuals and miscellaneous, 168,536*l.*; making up (after several deductions, by way of credits) the *four millions and a-half* with which we started.

I will here introduce another arrangement of the expenditure of the War Department, which may prove suggestive at the present moment. It is a table showing the actual expenditure during each of the five presidential terms, and the first two years of the present period, viz.:—

Presidential Periods.	Presidents.	Years in Office.	Actual Expenditure.
			£
1841-44	Harrison and Tyler .....	3½*	7,056,610
'45-48	Polk .....	4	18,442,880
'49-52	Taylor and Fillmore .....	4	11,065,713
'53-56	Pierce .....	4	13,908,219
'57-60	Buchanan .....	4	20,112,783
'61-63	Lincoln .....	2	228,345,646

IX.—Navy Department.

With respect to the Navy Department, the records of exact expenditure, prior to 1841, are wanting. From that date it has progressed—keeping up the decennial arrangements as far as possible—as follows :—

Periods.	Annual Amounts.	Total during Decades.
	£	£
1841 .....	1,200,215	—
'50 .....	1,584,663	14,575,806
'60 .....	2,302,630	23,972,795
'61 .....	2,485,715	—

The details of the expenditure for the year ending 30th June, 1862, are as follows:—

For pay and subsistence, 1,286,918*l.*; for increase, repairs, armament, and equipment, 511,897*l.*; for ordnance, 94,475*l.*; for navy yards, 24,299*l.*; for naval academy, 11,118*l.* Then, after omitting sundry ordinary details, come some very instructive items, viz., for six steam frigates, 38,558*l.* (being 6,426*l.* each!); for five sloops of war, 25,649*l.* (or 5,129*l.* each!); for seven steam sloops and one side-wheel steamer, 12,602*l.* (or 1,575*l.* each); and for seven steam sloops of war, “second class,” is added, by way of explanation, 5,116*l.* (or 730*l.* each). If these items may be taken as a fair sample of what the American navy was made of, no wonder need be expressed that, whenever an expedition went to sea, a considerable percentage of the vessels foundered. The schedule closes with the now familiar item, “relief of sundry individuals, and miscellaneous, 31,022*l.*”

I also add the “Presidential” table, corresponding to the one prepared for the War Department, as follows:—

*Expenditure of the Navy Department during each of the last Five Presidential Periods, with Two Years of the present Period added.*

Presidential Periods.	Presidents.	Years in Office.	Actual Expenditure.
			£
1841–44	Harrison and Tyler .....	3½*	4,913,605
'45–48	Polk .....	4	6,003,574
'49–52	Taylor and Fillmore .....	4	7,141,835
'53–56	Pierce .....	4	9,403,644
'57–60	Buchanan .....	4	10,585,723
'61–63	Lincoln .....	2	24,970,419

\* In consequence of a change which took place in 1843, of making up the public accounts to 30th June, instead of 31st December in each year, this period embraces only 3½ years' expenditure.

*X.—The Public Debt.*

In dealing with the revenue of the United States, I have been careful to exclude all such moneys as were brought into the Treasury



returns, as loans and Treasury notes; and in analysing the expenditure, I have been equally careful to exclude all those sums which had been applied either to payment of interest or liquidation of debt.

It has been the custom from the establishment of the Federal Government, as already stated, to provide for extraordinary expenditure, or to make up deficiencies in the revenue, in part by the issue of Treasury notes redeemable at short dates; or by loans at fixed rates of interest, 5, 6, or even 7 per cent., according to circumstances repayable in one, five, ten, or twenty years; some date for redemption and payment being, as far as I can gather, always fixed,—the funding system not having yet become part and parcel of American finance.

One effect of the present system is that the re-payment of the loan nearly always falls due at some distance from the date when the money was actually expended; and another effect is that very constantly money borrowed in any given year, is not for defraying any extraordinary charge incident on that year, but simply to repay money borrowed for the extraordinary purposes of previous years.

Under these circumstances, and for other sufficient reasons, I have determined to treat the public debt as entirely distinct from the other branches of finance.

The circumstances attending the establishment of the Federal Government involved it in debt; and the first financial records show the debt so incurred to have been by the 1st January, 1791, 15,092,695*l.*, and its amount at each subsequent decennial period has been as follows:—

Decennial Periods.	Amount of Public Debt. £
1791 .....	15,092,695
1800 .....	16,595,258
'10 .....	10,634,643
'20 .....	18,203,113
'30 .....	9,713,081
'36 .....	58,217
'40 .....	1,025,013
'50 .....	12,845,647
'60 .....	12,953,940
'61 .....	18,173,565

In June, 1861, the debt was about the same in amount as it was in 1820. Its highest point was in 1816, when the amount was 25,466,986*l.*, from which point it gradually declined down to 1836, since which year it has been steadily increasing.

The precise operations in regard to increasing and extinguishing the former debt, and building up the new one, will be shown in the following tables:—

Decennial Periods.	Created Loans and Treasury Notes.		Redeemed Principal and Interest.
		£	£
1791		1,158,695	—
—	Previously.....	15,092,695	—
1800	<i>Annual</i> .....	320,487	915,673
—	Ten years .....	4,294,312	11,010,180
1810	<i>Annual</i> .....	551,998	1,601,780
—	Ten years .....	592,967	15,729,570
1820	<i>Annual</i> .....	608,164	1,725,698
—	Ten years .....	22,198,746	26,403,826
1830	<i>Annual</i> .....	—	2,271,149
—	Ten years .....	3,000,064	21,471,519
1836	<i>Annual</i> .....	—	—
—	Six years .....	—	8,358,597

The result which this table establishes is that in respect of 46,337,479*l.* raised in loans and Treasury notes, prior to 1836, the Government had paid in principal and interest 83,973,692*l.*

I now propose to tabulate the transactions incident to the present public debt in a similar manner:—

Decennial Periods.	Created Loans and Treasury Notes.		Redeemed Principal and Interest.
		£	£
1840	<i>Annual</i> .....	1,117,909	817,322
—	Four years.....	5,031,324	4,166,428
1850	<i>Annual</i> .....	811,300	1,487,745
—	Ten years .....	25,244,833	16,776,001
1860	<i>Annual</i> .....	4,155,360	3,409,002
—	Ten years .....	14,555,100	23,646,644
1861	<i>One year</i> .....	8,462,898	4,444,376

The maximum rate of interest allowed by law is in New York State, South Carolina, Michigan, Wisconsin, and Iowa 7 per cent. In Georgia, Alabama, Mississippi, Louisiana, and Florida (all Southern states) 8 per cent. And, in the remainder of the States, 6 per cent.

I find it impossible to ascertain what has been the average rate of interest paid upon the public debt of the United States, from such materials as are in my possession.

The transactions in respect to the present public debt since



1836 are as follows:—53,294,155*l.* has been borrowed in twenty-five years, and 49,033,449*l.* has been paid in principal and interest in respect of the same, during that period, while the balance of the debt remains at 18,173,561*l.*

Perhaps the whole progress of the debt may be more clearly traced in this form:—

Decennial Periods.	Fresh Debt Created.	Debt Redeemed and Interest during Decades.	Debt Existing.
	£	£	£
1791.....	—	—	15,092,695
1800.....	5,453,007	11,010,180	16,595,258
'10.....	592,967	15,729,570	10,634,643
'20.....	22,198,746	26,403,826	18,203,113
'30.....	3,000,064	21,471,519	9,713,081
1836.....	—	8,358,597	58,217
'40.....	5,031,324	4,166,428	1,025,013
'50.....	25,244,833	16,776,001	12,845,647
'60.....	14,553,100	23,646,644	12,953,940
'61.....	8,462,898	4,444,376	18,173,565

The difficulty in making all the transactions absolutely clear at each stage, is the impossibility at the early period of the debt of discriminating between payment for interest, and payments in redemption of principal.

Taking the entire results as given in the last table, it appears that the United States have been borrowing for 70 years about *one million and a half* per annum, and have been paying in return, during the like period, about *two millions* per annum, having still *eighteen millions* unpaid.

The largest amount raised in any one year of the periods of which I have been speaking occurred in 1815, the amount then being 7,052,864*l.* Large amounts were also raised in the two preceding years, the United States being at the time at war with this country. In 1847-8-9, large sums were also raised for the war in Texas.

At this point I must dismiss the subject of the public debt, to return to it hereafter in its new proportions.

### XI.—Retrospect.

The *first* section of this paper was devoted almost entirely to a record of the growth and development of the material resources of the United States;—the wonderful increase of her population; the extent of her manufactures; the amount of her shipping; the growing magnitude of her imports and exports, and of what they

chiefly consist; the resources of her banks, and the extent of her currency;—indeed, of all those elements which, in process of time, have come to be admitted as evidence of the growth and wealth of nations,—their strength and their pride. The facts presented admit of but one conclusion.

In this, the *second* section, I have traced the gradual expansion of the revenue from its several sources, and the concurrent enlargement of the expenditure, defining its objects.

And what is the obvious conclusion to be drawn from these two sections, read in the light of each other, as they are designed and intended to be? *It is, that for the last half century at least, America has been the most progressive nation in the world, and that during the same period Americans have been more lightly taxed than any other civilised people.*

This is a short inference deduced from many a data; but I believe the conclusion is obvious, and therefore do not dwell upon it.

For the purpose simply of determining the extent to which this proposition is true, I invite attention to the following table, giving the national expenditure per head of the population in all the leading European countries based upon the budgets of 1862, and estimated on the population of each country at its last census. In the case of the United States, I take the census of 1860, and the expenditure for 1861.

Country.	Population.	Expenditure (1862).	Sum per Head on Population.
		£	£ s. d.
United Kingdom.....	29,307,199	67,509,268	2 6 —
France .....	37,382,225	78,769,031	2 2 —
Russia .....	74,139,394	49,181,458	— 13 4
Prussia.....	18,500,446	20,986,261	1 2 —
Austria.....	35,019,058	51,035,985	1 9 —
Italy.....	21,920,269	38,955,382	1 15 —
Spain .....	15,454,514	12,720,159	— 16 5
Portugal .....	3,908,861	3,411,314	— 17 6
Netherlands.....	3,569,456	6,317,334	1 15 —
Belgium .....	4,731,957	5,807,055	1 4 6
	1860.	1861.	
United States .....	31,429,891	16,923,451	— 11 —

In this statement, the interest upon the public debt is included in the expenditure. The following table shows the amount of this interest, during the year 1862, for each country, and the sum per head on the population. In the case of the United States, the figures for 1861 are again taken.



Country.	Interest of Debt (1862).	Sum per Head on Population.	
	£	s.	d.
United Kingdom.....	26,172,606	17	—
France .....	23,751,289	12	7
Russia .....	8,596,898	2	4
Prussia.....	2,439,602	2	—
Austria.....	14,365,123	8	—
Italy.....	7,193,765	7	—
Spain .....	1,833,259	3	5
Portugal .....	1,572,314	8	—
Netherlands.....	1,733,334	9	—
Belgium .....	1,616,880	6	—
United States .....	800,034	—	6

*Note.*—In the materials upon which this and the preceding table is based, I am indebted to the writer of an able paper in the “Daily Telegraph.”

In whichever aspect the case is viewed, but one conclusion presents itself. The United States of the past has been the most favoured amongst nations ; its people the most prosperous amongst people.



EXPENSES of UNIVERSITY EDUCATION at CAMBRIDGE; PAST and PRESENT. *By the REV. WILLIAM EMERY, B.D., Senior Fellow and Tutor of Corpus Christi College, Cambridge, late Senior Proctor, and one of Her Majesty's Preachers at Whitehall.*

[Read before Section (F) of British Association, in October, 1862.]

IN early times, before any colleges were founded at Cambridge, large numbers of students frequented the University for instruction. They lived at their own charges with the townsfolk or in houses presided over by a principal, and attended the lectures of professors and teachers who came from time to time amongst them.

It is said that the university was founded about A.D. 631, by Sigibert, King of the East Angles, was revived in part by Edward the Elder, after the Danish ravages, but only became a place of systematized instruction A.D. 1109, when Joffrid, the Abbot of Croyland, sent to his Manor of Cottenham Gilbert, his fellow-monk, and professor of divinity, who, with three other monks, repaired daily to Cambridge, where, having hired a public barn, they made open profession of their sciences. The number of scholars so rapidly increased, it appears, that in the second year one building would not suffice. Therefore in different quarters of the town, and at different hours, the various teachers gave their instruction, which consisted of grammar, logic, and rhetoric; with divinity on Sundays and Holy Days.

It was not till A.D. 1257, that the first college, St. Peter's, was founded by Hugh de Balsham, who in the year 1280, when Bishop of Ely, endowed the college with revenues for the support of a master, fourteen fellows, two Bible-clerks, and eight poor scholars.

According to the survey of this and other colleges in 1545 and 1546, by the commissioners, Drs. Parker, Redman, and May, each Bible-clerk was then allowed for commons and diet 2*l.* 4*s.* 4*d.*, and we may fairly consider the expense of an ordinary student at that time to range from 2*l.* to 2*l.* 10*s.* a-year.

In A.D. 1550, a Mr. Thomas Lever, when preaching at St. Paul's Cross against the covetousness and injustice of courtiers and others who had, as he declared, contrary to the king's intentions, filched the revenues which had formerly supported students, gives an interesting view of the state of the university and mode of life at this time:—"For before that you did begin to be disposers of the king's



“liberality towards learning and poverty, there was,” he declares, “in houses belonging to the University of Cambridge, two hundred students of divinity, many very well learned: which be now all clean gone, house and man, young toward scholars, and old fatherly doctors, not one of them left: one hundred also of another sort, that having rich friends, or being beneficed men, did live of themselves in otries and inns, be either gone away or else fain to creep into colleges and put poor men from bare livings. Those both be all gone, and a small number of poor, godly, diligent students now remaining only in colleges, be not able to tarry and continue their study for lack of exhibition and help. There be divers there which rise daily betwixt four and five of the clock in the morning, and from five until six of the clock use common prayer, with an exhortation of God’s word, in a common chapel, and from six unto ten of the clock use either private study or common lectures. At ten of the clock they go to dinner, where as they be content with a penny piece of beef amongst four, having a few porage made of the broth of the same beef, with salt and oatmeal, and nothing else.

“After this slender dinner, they be either teaching or learning, until five of the clock in the evening, when as they have a supper not much better than their dinner. Immediately after the which they go either to reasoning in problems or unto some other study, until it be nine or ten of the clock, and there being without fire, are fain to walk or run up and down half-an-hour to get a heat on their feet when they go to bed.”

Passing on a century, there is a letter of Strype, when an undergraduate at Jesus College, written to his mother in 1662, which gives an idea of student life and expenses at that period.

Strype first of all explains that he paid 1 per cent. more for taking up his things than towns-people. “Dr. Pearson paid so,” he writes, “and several other lads in this college, and my tutor told me they would expect so much of me, being a scholar, and I found it so. Do not wonder,” he continues, “so much at our commons; they are more than many colleges have. Trinity itself, which is the famousest college in the university, have but three-halfpence.

“We have roast meat, dinner and supper, throughout the week: and such meat as you know I had not use to care for: and that is veal: but now I have learned to eat it. Sometimes, nevertheless, we have boiled meat with pottage: and beef and mutton, which I am glad of, except Fridays and Saturdays, and sometimes Wednesdays, which days we have fish at dinner and tansy or pudding for supper. Our parts are slender enough. But there is this remedy: we may retire into the butteries and there take a halfpenny loaf and butter or cheese: or else to the kitchen, and

“ take there what the cook hath. But, for my part, I am sure, I  
“ never visited the kitchen yet since I have been here, and the  
“ butteries but seldom after meals, unless for a ciza, that is a farthing-  
“ worth of small beer: so that less than a penny in beer doth serve  
“ me a whole day.

“ I have thoughts of a chamber which is a very handsome one,  
“ and one pair of stairs high, and that looketh into the Master’s  
“ garden. The price is but 20s. per annum, ten whereof a knight’s  
“ son doth pay, so that I shall have but 10s. to pay a-year, besides  
“ my income, which may be about 40s. or thereabouts. At my first  
“ coming I laid alone, but since, my tutor desired me to let a very  
“ clean lad lay with me, and an alderman’s son, of Colchester, which I  
“ could not deny, being newly come: he hath laid with me now for  
“ almost a fortnight, and will do till he can provide himself a chamber.

“ We go twice a-day to chapel, in the morning about seven, and  
“ in the evening about five. After we come from chapel in the  
“ morning, which is towards eight, we go to the butteries for our  
“ breakfast, which usually is five farthings—an halfpenny loaf and  
“ butter, and a ciza of beer. But sometimes I go to an honest house  
“ near the college, and have a pint of milk boiled for my breakfast.”

Strype, it seems, went to London on horseback, which cost 10s.

Passing over another century, the expenditure in 1768 is found to have much increased. Tutorial fees were larger, and private tutors were employed at the rate of 20*l.* per annum. Attempts were also made by the vice-chancellor to build an amphitheatre for music and lectures, which were severely condemned by many on the ground that “the dissipation of the students needed no such public  
“ encouragement.”

About this time efforts were made by Dr. Jebb and others to increase and extend university examinations, which finally were successful, and may be considered to have led to the present system of competition for classes and prizes.

Fifty years later it is evident that a different class took advantage of the university, at least in larger numbers, from the numerous entries of noblemen and fellow-commoners at the various colleges, especially at St. John’s. As a consequence, more expensive habits were introduced amongst the students generally. The evidence of trustworthy witnesses affords no doubt that extravagance, intemperance, immorality, and lax discipline reached their height thirty or forty years ago.

Of late years there has been a manifest improvement in these and other respects. This is due to several causes, amongst which may be mentioned the improved condition of the examinations, the extra reading required for the professor’s certificate from the pollmen, the more regular attendance at lectures, the shortening of



the term of residence for the ordinary degree to two years and three-quarters, or nine terms of actual residence, the more frequent celebration of Holy Communion in the chapels, the introduction of college sermons, and, perhaps more than all, the increased interest which the men, year by year, take in religious work and healthful athletic sports.

A larger proportion of sober-minded, thoughtful, religious men come yearly into residence, and the riotous, careless, spendthrift set is much reduced in consequence.

The expense which students of different classes now necessarily incur during three terms of residence each year and long vacation is as follows. The estimates do *not* include private tuition, but *do* include college bills for instruction, commons, terminal payments, grocers' and booksellers' bills, travelling expenses to and from Cambridge, pocket money, and generally tradesmen's bills for personal expenditure and entertainments. For a very economical student, 125*l.*; for one whose friends do not wish him to be separated from any reasonable enjoyment whilst avoiding extravagance, 250*l.* The average annual outlay may be put down at 180*l.*

Many men do, however, by very great economy pass through for 100*l.* a-year, and if resident with friends in the town for much less.

If the student is to obtain prizes, scholarships, or fellowship, or in many cases even to pass with credit, he must have a private tutor, whose fee for a term is 8*l.*, and for a long vacation 12*l.* The employment of a private tutor will therefore add 24*l.* or 36*l.* to the average annual expense.

For deserving students considerable aid is afforded by exhibitions, sizarships, and scholarships, which in almost all cases will suffice for a private tutor, and in some provide more than sufficient for the whole expense of the education.

The estimates which have been given agree with the evidence tendered to Her Majesty's Commissioners in 1850 and 1851.

In the report then published, it was stated that the necessary college expenses are already so small as to be incapable of reduction, and that other expenses can only, or chiefly, be checked by judicious parents and guardians, and by careful oversight of tutors and others.

The evidence of the Master of Trinity College is well worthy of attention. "The expensiveness of students at the university is in a great measure the act of the students themselves, not in consequence of, but in spite of the measures taken by the university and by colleges. The necessary college bills are everywhere small. The additional expenses incurred by students, for dress, luxuries, entertainments, and amusements, may be very large, and are very difficult to control.

“ The amount of such expenses depends very much upon the  
“ previous habits of the students, as formed in their own families,  
“ and at the schools where they have been, and upon the conduct of  
“ their parents and friends. When a student has been accustomed  
“ to expensive habits at home and at school, as is very often the case,  
“ it is very difficult to prevent such habits at college, where he is  
“ necessarily less closely and constantly subjected to control. Nor  
“ can it be proper to conceal the fact that the conduct of parents  
“ and friends very often greatly increases the difficulty of controlling  
“ the expenses of students disposed to be extravagant. Such  
“ guardians of our young men, often though loud in their complaints  
“ of their extravagance and of the college and university authorities  
“ for not preventing it, are not ready to aid the authorities in  
“ enforcing measures really effectual for that purpose, either by  
“ making the payments of tradesmen’s bills dependent upon there  
“ being a proper reserve in the credit given, or by removing from the  
“ university a student when he shows a disposition to be extra-  
“ vagant, or by pleading his minority in cases where this may be  
“ reasonable, or by assisting the authorities in other measures for  
“ controlling extravagant expense.”

There is no doubt that expensive habits are frequently brought by students from the public schools, and form a serious obstacle to the growth of carefulness and frugality among the undergraduates. “ If boys cost 200*l.* or 300*l.* a-year at Eton or Harrow, they are not “ likely to live on less at Cambridge.”

A mass of evidence, touching the expenses of the undergraduate course, was presented to the Cambridge University Commission, and as might be supposed, the estimates given differed widely. It was agreed by all that the necessary expenses of a university education, about 90*l.* a-year, cannot be materially diminished, and that the other expenses must depend upon the vigilance of tutors, parents, and guardians.

What is economy in one man is extravagance in another, and therefore the total justifiable expenditure must be regulated by the private circumstances and means of the student.

The difficulty of giving even an approximate estimate of the actual expenses of a student from the tutor’s accounts merely was well illustrated by a return to the Commissioners of the expenditure of 104 students of Christ’s College, so far as known to the college authorities. The net returns for these 104 from time of entry till the B. A. Degree, including eleven terms ( $3\frac{1}{2}$  years) of actual residence, and one, two, or three long vacations, may be tabulated thus :—16 were under 200*l.*, 12 under 300*l.*, 23 under 400*l.*, 18 under 500*l.*, 11 under 600*l.*, and 24 over 600*l.* One return was only 155*l.* 11*s.* 6*d.*, another 1,015*l.* 12*s.* 6*d.* Probably in the one the



student paid for many things which in the other were defrayed through the tutor.

The late master of St. John's wrote thus:—"The necessary expenses of the general classes of students, from the time of entrance to that of taking the First Degree, may be estimated as follows:—nobleman 650*l.*, fellow commoner 485*l.*, pensioner 355*l.*, sizar 220*l.*" "It is difficult," he adds, "to give an accurate answer respecting the *actual* expenses. These for a diligent and prudent student in each of the same classes, need not exceed the following estimates:—

"Nobleman 1,400*l.*, fellow commoner 1,050*l.*, pensioner 630*l.*, sizar 180*l.* The actual expenses of many persons in each of these classes fall considerably below this estimate. No allowance for private tuition is included."

There can be no doubt that an allowance of from 200*l.* to 300*l.* a-year will enable a student to pass most comfortably through the university with the assistance of a private tutor, and without other aid as exhibitions, scholarships, &c.

No doubt this sum will prevent many from taking advantage of the benefits of an university education, but it certainly seems to point conclusively to this important fact—important for the nation as well as for individuals—that *an university education is within reach of large numbers who at present neglect to profit by it.*

The object of this paper is not to discuss the reason of this neglect, or to explain why the number of students at the ancient universities of Cambridge and Oxford do not increase proportionally to the increase of wealth and population in the empire.

But a few words in conclusion on this topic will be, perhaps, pardoned.

It is possible the old universities do not yet meet the varied educational wishes of the public. Many changes, however, have of late been introduced for this purpose, and new sciences and studies have obtained more consideration than formerly. Much, doubtless, remains to be done. Even the old schools of divinity, law, and physic (especially the two former) are not so flourishing as they ought to be, and certainly demand very careful attention from the professors to render them worthy of modern requirements.

The social advantages of an university education cannot be denied or over-estimated.

The meeting on the common ground of studentship by the various ranks of social life has a most beneficial effect upon society generally, and helps to weld class with class whilst opening up honourable positions and emoluments for the deserving, whether rich or poor.

The expense of an university education might possibly after all

be somewhat diminished and perhaps will be by the late re-adjustment of college revenues. But be this as it may, much might be done to increase the number of students, if the wealthier portion of the public would imitate more often the liberality of their forefathers who, in days past, charitably bestowed of their goods to provide for poor scholars; and for the encouragement of sound learning and religious education at the colleges.

It appears granted on all sides that an unlearned non-university clergy would be a frightful calamity for the country; and if so, active measures should be taken to provide means for sending to our ancient universities, from the public and private schools of the kingdom, a sufficient supply of able young men at least for the wants of the Church.

The objection to increase of numbers of resident students in the colleges from moral considerations; or, from fear of encouraging expensive thoughtless habits is, in the main, void of solid foundation.

Residence in Cambridge for twenty years as student and tutor, and two years experience of proctorial duties, once in 1851 as pro-rector, and last year (1861-62) as senior proctor, enables the writer to assert with something like authority, that the dangers of an university life are greatly exaggerated. Amongst 1,600 or 1,700 young men drawn from the upper and middle ranks, there will always, of course, be found some who abuse their gifts and opportunities; but, as a rule, rioting, dissipation, and undue expenditure are restricted to comparatively few, and rather brought into Cambridge from some of our public schools, than produced during residence in the university.

A learned principal of one of our collegiate establishments in the West of England has but stated the truth that the conduct and whole bearing of Cambridge students contrasts favourably with that of an equal number of young men in London, Liverpool, and elsewhere.

It is impossible to test the moral condition of the students by statistical reference to recorded punishment, for as a fact discipline is exercised rather in private than public. Severe punishments are seldom inflicted by formal sentence. If a student is considered to deserve dismissal from college, his friends are generally requested to remove him permanently, or for a limited period. Such removals or rustications are, however, very rare. Without doubt the discipline in most of the colleges might be advantageously increased, especially in the case of Trinity College, where half the men, for want of sufficient college accommodation, are obliged to live in lodgings in various parts of the town.

The lodging-house system is in principle and practice bad, and no regulations can wholly prevent the evils which must ever, to some



extent, follow from it. It would be well if colleges did not take more students than they could accommodate. They might raise new buildings, or establish halls or hostels. At least they might agree to mass together as much as possible the lodgings, and put them under efficient supervision.

Both the proctorial and the lodging-house system are capable of manifest improvement, and there are indications that the authorities are more willing than formerly to consider this. All such improvement of internal administration will have a beneficial effect upon the men, and tend to lessen still more the temptations to idleness, sin, and extravagance, which, even at present, are small compared with other places and youths similarly circumstanced.

*Note.*—The present system of independent colleges, with their separate establishments of cook, butler, combination-man, gyps, waiters, and bedmakers, is a serious difficulty in the way of reduction of expenses.

The principal servants expect, even in the small colleges, 200*l.* and 300*l.* a-year, so that in a college of sixty members the cost of service to the students is not less than 1,500*l.*

If the expense of an university education is to be much reduced it can only be by the introduction of hostels conducted on principles of economy and discipline, like the College of St. Augustine's, Canterbury, and other similar places. Such hostels would be a great novelty and meet with much opposition from those who are unwilling to see amongst the students more marked social disparity than at present. The advantages of an university education could, however, be thus put within reach of larger numbers of students ready, for learning's sake and future usefulness, to live after the self-denying fashion of those mentioned by the preacher, Thomas Lever, A.D. 1550.

The new order of men thus introduced might help to supply the felt want of a well educated but very moderately recompensed clergy, and might also correct the present tendency to immoderate pleasure and feastings which helps to increased expenditure and threatens mischief to sound learning and religious education.

## APPENDIX A.

The following statistics of revenues, incomes, &c., gleaned from the Reports of Royal Commissioners, concerning St. Peter's College, the first college founded in the university, are not without interest. Like changes have taken place in the other colleges.

A.D. 1545-46.	£	s.	d.	
Master's stipend, commons, and livery.....	7	3	4	per annum.
14 fellows' „ .....	5	3	4	„ each.
2 bible clerks .....	2	4	4	„ „

(There were also 11 poor scholars.)

The clear revenues were 138*l.* 3*s.*  $-\frac{3}{4}$ *d.* per annum, being less than the expenses by 49*l.* 15*s.* 5*d.*

The following is a statement of the particular sum received by the master in each of the seven years ending at Michaelmas last (1851), out of the net income before estimated. This statement does not include the income arising from a living attached to his office by an Act of Parliament or the proceeds of certain property, which has been bequeathed by various benefactors, and of which, in practice, he has the exclusive management.

	£	s.	d.
1851 .....	419	11	5
'50 .....	471	3	2
'49 .....	536	9	11
'48 .....	416	10	2
'47 .....	451	10	—
'46 .....	361	10	10
'45 .....	356	9	6 $\frac{1}{2}$
Total.....	3,013	5	$-\frac{1}{2}$
Average .....	430	9	3

The following is a statement of the sum received by a foundation fellow, in each of the seven years before mentioned.

	£	s.	d.
1851 .....	252	6	11
'50 .....	304	1	2
'49 .....	368	5	4
'48 .....	245	4	6
'47 .....	260	15	4
'46 .....	189	—	7
'45 .....	186	9	6
Total .....	1,806	3	4
Average .....	258	—	5



In these two statements income tax is supposed to be deducted. Each of the eight senior foundation fellows received a small additional sum, varying, in their respective cases, from 2*l.* to 7*l.* -s. 3*d.*; or, if income tax be deducted, from 1*l.* 18*s.* 10*d.* to 6*l.* 16*s.* 2*d.* In the statement of a fellow's income, the rent of his rooms has been included, but not commons in hall.

There are no foundation scholars. There were, however, sixty-eight scholarships on sixteen different foundations, two exhibitions, and four sizarships, of varying values from 30*l.* downwards.

The total aggregate of gross income is about 7,317*l.* 3*s.* -*d.*, that of net income about 5,923*l.* 14*s.* 4*d.*

This statement includes not only the income of the foundation estates and property, but also the income arising from benefactions, and from the estates and property of all supplemental or bye-foundations; and that arising from or belonging to the Domus fund, and the chapel, library, lecture-room, graduates' composition, building, and advowson funds.

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#### APPENDIX B.

The following table, drawn from the Report of the Royal Commissioners, concerning the expenses of 104 students at Christ's College mentioned in this paper, as given by the master, will afford the best possible illustration of the various kinds of students which frequent the university, as well as of the aids which deserving students can obtain.

This aid has been largely increased in most of the colleges by late adjustments, and a second table of scholarships, exhibitions, &c., as at present arranged, is appended.

This second table, with other matter of an useful and necessary kind for parents and guardians who wish to obtain the best and most recent information, will be found in "The Students Guide," published by Deighton and Bell, Cambridge.

The writers of the papers contained in this excellent work are some of the leading residents at Cambridge, actively engaged in tutorial and professional duties.

In addition to college help, a large number of students bring with them school exhibitions, grants from societies and companies, &c., so that many, especially sizars, actually pass through at no private expense, and in some cases make a profit by residence.

A third table of such assistances is appended, by R. Potts, Esq., M.A., of Trinity College, which, with other valuable matter, will be found in his "*Liber Cantabrigiensis*," parts 1 and 2.

The second of the succeeding columns gives, in each case, the total of all the bills charged to the student, &c.

*Total Expenses of 104 Students of Christ's College, Cambridge, who proceeded regularly to their First Degree in the Years 1843-49 inclusive; so far as those Expenses came under the knowledge of the College Tutors.*

\*\* All the Students in the following list proceeded to the Degree of B.A., except No. 87 and No. 104, both of whom proceeded to the Degree LL.B.

No.	Total Bills charged to each Student.	Scholarships, Exhibitions, &c., allowed.	Actual Net Expense of each Student.	Residence.		No.	Total Bills charged to each Student.	Scholarships, Exhibitions, &c., allowed.	Actual Net Expense of each Student.	Residence.	
				Number of Terms.	Long Vacations.					Number of Terms.	Long Vacations.
1	£ 575	£ 164	£ 410	11	1	41	£ 377	—	£ 377	11	—
2	464	69	384	11	1	42	410	39	371	11	1
3	988	—	988	13	—	43	330	171	159	11	—
4	366	185	181	11	1	44	322	—	322	12	—
5	494	1	493	11	1	45	478	62	416	11	—
6	397	66	331	11	2	46	544	—	544	11	—
7	442	—	442	11	—	47	434	105	329	11	—
8	458	45	412	11	2	48	535	80	454	11	3
9	553	91	461	11	2	49	672	—	672	11	—
10	242	—	242	11	—	50	438	74	364	11	1
11	1,015	—	1,015	11	—	51	226	84	141	11	2
12	383	1	382	11	—	52	323	62	261	11	—
13	742	382	360	11	2	53	436	226	209	11	2
14	700	—	700	11	—	54	495	163	332	11	3
15	492	79	412	11	2	55	516	103	413	11	1
16	368	129	239	11	2	56	784	365	418	12	1
17	465	85	380	11	—	57	470	—	470	11	—
18	707	429	277	13	1	58	193	—	193	11	—
19	624	81	542	11	2	59	509	—	509	11	—
20	393	—	393	11	—	60	513	42	470	11	1
21	536	—	536	11	—	61	361	71	289	11	1
22	722	—	722	11	—	62	211	—	211	11	—
23	717	2	715	11	2	63	677	—	677	11	—
24	415	57	357	11	1	64	515	—	515	12	1
25	629	—	629	11	1	65	615	—	615	11	—
26	460	62	397	11	1	66	808	—	808	12	—
27	400	—	400	10	—	67	546	—	546	11	—
28	308	—	308	11	—	68	338	—	338	11	—
29	519	—	519	11	—	69	457	141	316	11	2
30	129	—	129	11	—	70	310	51	259	11	—
31	566	30	535	11	2	71	456	84	371	11	3
32	276	76	199	11	2	72	650	—	650	12	—
33	439	73	365	11	2	73	312	55	256	11	—
34	244	—	244	11	—	74	672	—	672	11	—
35	330	94	236	11	3	75	748	—	748	11	—
36	695	—	695	11	—	76	317	161	156	11	—
37	604	—	604	11	—	77	561	—	561	11	—
38	557	88	468	12	—	78	525	57	468	11	—
39	469	—	469	11	—	79	862	—	862	11	—
40	383	2	380	11	—	80	175	—	175	11	—



Total Expenses of 104 Students of Christ's College Cambridge—Contd.

No.	Total Bills charged to each Student.	Scholarships, Exhibitions, &c., allowed.	Actual Net Expense of each Student.	Residence.		No.	Total Bills charged to each Student.	Scholarships, Exhibitions, &c., allowed.	Actual Net Expense of each Student.	Residence.	
				Number of Terms.	Long Vacations.					Number of Terms.	Long Vacations.
	£	£	£				£	£	£		
81	300	—	300	11	—	93	201	4	197	11	—
82	188	203	*—	11	—	94	251	10	240	11	1
83	383	97	286	11	—	95	216	10	206	11	—
84	155	39	116	11	—	96	334	12	322	11	1
85	577	50	526	11	1	97	233	76	157	11	—
86	505	89	416	11	1	98	483	59	423	11	1
87	531	—	531	12	—	99	211	15	196	11	—
88	321	—	321	10	—	100	181	8	173	11	—
89	165	12	153	11	—	101	364	9	355	11	—
90	174	12	162	11	—	102	209	87	122	11	—
91	286	198	87	11	1	103	719	—	719	11	—
92	281	149	132	11	2	104	600	—	600	12	—

Note. — The students, Nos. 1 to 88, were “pensioners;” Nos. 89, 90, and 91 were “sizar;” Nos. 92 to 101 were “pensioners” about half their time and “sizar;” the remainder; No. 102 was a “pensioner;” No. 103 and No. 104 were “fellow commoners.” The students, Nos. 30 and 80, resided in Cambridge, with their families; and No. 102 was permitted to reside the shortest time allowable in each term.

\* No. 82. This student received the difference, 25*l.* 14*s.* 9*d.* He was scholar of the college; and twice first prizeman.

The figures above have been taken from the Report of the University Commission; to save space the fractions of a pound have been struck out, which has caused, in some instances, a discrepancy in the final unit of the net expense.

APPENDIX C.

In October of last year one of the tutors of St. John's College, Cambridge, kindly forwarded the following particulars to assist in drawing up the paper for the statistical section of the British Association.

Necessary Annual Expenses of a Pensioner at St. John's College for a year, exclusive of tradesmen's bills, private tuition, &c.

	£	s.	d.
Dinner, 175 days .....	12	11	6 <sup>3</sup> / <sub>4</sub>
Sizings, viz., bread, butter, cheese, and letters .....	5	16	8
Service, taxes, library, &c. ....	6	13	8
Bedmaker .....	6	6	—
Shoecleaner .....	1	10	—
Laundress .....	7	4	—
Tuition .....	18	—	—
Rent, from 12 <i>l.</i> to 22 <i>l.</i> , say.....	18	—	—
Coals .....	3	5	—
Milk, &c. ....	1	10	—
	80	16	10 <sup>3</sup> / <sub>4</sub>

The sizar's charges are smaller in the items of dinner, viz., 11<sup>3</sup>/<sub>4</sub>*d.* instead of 1*s.* 5<sup>1</sup>/<sub>4</sub>*d.* per diem; tutors, 6*l.* instead of 18*l.*; weekly charges, 1*s.* 3*d.* instead of 5*s.*

Actual college accounts of nine pensioners during the year 1861-62.

A	accounts of <i>expensive</i> men.
B	„ <i>ordinary</i> men.
C	„ <i>economical</i> men.

All the accounts include such tradesmen's bills as were put in. P. T. means that the student had private tuition throughout the year;  $\frac{1}{2}$  P. T. for a part of the year; and where no letters are attached, the student did not avail himself of private tuition.

	£	s.	d.	
A (1) .....	200	—	1	P. T.
(2) .....	159	7	9	
(3) .....	165	12	1 $\frac{1}{2}$	P. T.
B (1) .....	102	15	7 $\frac{1}{2}$	P. T.
(2) .....	111	—	—	
(3) .....	119	4	1	P. T.
C (1) .....	114	2	11	P. T.
(3) .....	74	5	6	
(3) .....	119	8	11	P. T.

Actual sizars' expenses during the year 1861-62. P. T., as before, means private tuition throughout the year.

	£	s.	d.	
One .....	127	10	5	P. T.
Two .....	104	13	4	„
Three .....	89	—	7	„
Four* .....	49	10	7	
Five* .....	45	8	11	
Six* .....	39	16	2	

The following account of a first year's expenditure of an economical Oxford student, reading only for an ordinary degree, and supposed to spend in London or elsewhere twenty-eight weeks of vacation, may be interesting. The small amount for books is explained by the fact of presents and borrowings.

	£	s.
Entrance fee, including matriculation ...	6	8
Caution .....	21	—
Furniture .....	10	—
Tuition fees .....	12	12
Room, rent .....	10	10
Buttery (for meals) .....	23	10
College servants .....	4	—
Scout .....	3	15
Washing .....	4	—
Subscriptions .....	4	—
Travelling .....	5	—
Clothes .....	15	—
Books .....	1	—
Writing materials .....	2	—
Extras, wine, &c. ....	10	—
	<hr/>	<hr/>
	132	15

\* It would appear these sums must be after deductions for scholarships, &c.



For the next two years this amount would be diminished by entrance fee and caution, but other payments to the university for examinations and degree must be included. A student, a B.A. of Oxford, spent 340*l.* in three years without private tuition. Thus it may be gathered that there is little or no difference of expense at the two universities for ordinary students.

APPENDIX D.

*Exhibitions in the Gift of the Chartered Companies of London, for Students at Cambridge.*

(From "Lib. Cantab.," part 1, pp. 533, &c.)

Name of Company.	Number of Exhibitions.	Yearly Value.	Tenure.
		£ s. d.	
Clothworkers' .....	1 or more	25 - - total	3 years
	6	20 - - each	—
Carpenters' .....	1	4 - -	3 years
Cordwainers' .....	2	4 - - each	5 "
Ironmongers' .....	1	2 10 -	till B.A.
	1	30 - - about	—
	2	4 - - each	3 years
Salters' .....	2	5 - - "	—
Skinners' .....	2	15 - - "	—
	1	5 - -	—
Drapers' .....	1	6 13 4	6 years
Grocers' .....	8	25 - - each	{ not more than 4
Goldsmiths' .....	1	5 - -	years
	17	30 - - each	{ 7 years
Haberdashers' .....	1	10 - -	{ 12 terms from resi-
	1	5 - -	dence
	1	5 - -	during residence
	3	6 13 4 each	—
	4	12 - - "	—
Mercers' .....	4	20 - - "	7 years, if resident
	4	30 - - "	7 "
	2	50 - - "	—
	3	14 - - "	—
Merchant Tailors' ....	1	12 - -	—
Cutlers' .....	2	20 - - each	till M.A., if resident
Bowyers' .....	3	10 - - "	—
Leather-sellers' .....	2	20 - - "	4 years
	2	65 - - "	5 "
	1	36 - -	4 "
	1	4 - -	4 "
Fishmongers' .....	2	4 - - each	—
	12	20 - - "	—

## APPENDIX E.

*Statement of the Number and Annual Value of the Open Scholarships in the Colleges of Cambridge University, in or about the Year 1863.*

Names of Colleges.	Total Annual Value of Scholarships.	Number, and the Annual Value of Scholarships, &c., at each College.
	£	
St. Peter's .....	1,060	12 at 60 <i>l.</i> ; 6 at 40 <i>l.</i> ; 5 at 20 <i>l.</i>
Clare .....	1,060	{ 8 at 60 <i>l.</i> ; 8 at 40 <i>l.</i> ; 8 at 20 <i>l.</i> ; also 1 minor scholarship at 60 <i>l.</i> , and 1 at 40 <i>l.</i>
Pembroke .....	840	8 at 60 <i>l.</i> ; 6 at 40 <i>l.</i> ; 6 at 20 <i>l.</i>
Gonville & Caius {	1,320	9 at 60 <i>l.</i> ; 9 at 40 <i>l.</i> ; 6 at 30 <i>l.</i> , and 12 at 20 <i>l.</i> ;
	452	and 4 studentships in medicine of 113 <i>l.</i>
Trinity Hall .... {	—	{ 3 at 60 <i>l.</i> , and 13 varying from 50 <i>l.</i> to 13 <i>l.</i> ;
	150	and 3 studentships in law at the present
	110	value of 50 <i>l.</i> per annum. There are also
Corpus Christi ....	580	{ 4 at 60 <i>l.</i> ; 6 at 30 <i>l.</i> ; 4 at 25 <i>l.</i> ; 2 at 20 <i>l.</i> ; 1 at 20 <i>l.</i> , with rooms rent free
King's .....	3,840	{ 24 at 80 <i>l.</i> , appropriated to the scholars of Eton College; and 24 open scholarships at 80 <i>l.</i>
Queen's .....	550	4 at 50 <i>l.</i> ; 5 at 40 <i>l.</i> ; 5 at 30 <i>l.</i>
St. Catherine's.....	775	{ 2 at 50 <i>l.</i> ; 10 at 40 <i>l.</i> , with rooms rent free;
		9 at 25 <i>l.</i> ; and 10 "master's sizarships" of the value of 50 <i>l.</i> per annum
Jesus .....	1,055	{ 5 at 50 <i>l.</i> ; 6 at 30 <i>l.</i> ; 4 at 20 <i>l.</i> ; 14 Rustal scholarships at 30 <i>l.</i> to 40 <i>l.</i> ; 1 about 40 <i>l.</i> , and 1 at 15 <i>l.</i> . The last 16 are for the sons of clergymen
Christ's .....	1,470	12 at 70 <i>l.</i> ; 6 at 50 <i>l.</i> ; 11 at 30 <i>l.</i>
St. John's .....	about 6,200 is set apart from the revenues of the College for the maintenance of scholarships, &c. * * * * *	{ 60 at 50 <i>l.</i> ; 8 (minor) at 50 <i>l.</i> ; 1 divinity studentship at 100 <i>l.</i> , tenable for three years; a Hebrew scholarship at 32 <i>l.</i> ; and 910 <i>l.</i> , which is given away annually to the "most deserving students;" 9 <i>proper</i> sizars at 35 <i>l.</i> ; the ordinary sizarship is worth 25 <i>l.</i> a-year.
Magdelene .....	420	3 at 60 <i>l.</i> ; 3 at 40 <i>l.</i> ; 6 at 20 <i>l.</i>
Trinity..... {	4,670	{ 72 at 60 <i>l.</i> , with "dinner in hall;" 6 minor scholarships at 50 <i>l.</i> ; 1 Sheepshank's exhibition at 50 <i>l.</i> ; 16 sizars at 60 <i>l.</i> each.
	960	
Emmanuel .....	1,020	{ 12 at 60 <i>l.</i> ; 5 at 30 <i>l.</i> , and 5 at 30 <i>l.</i> (Dr. Thorpe's)
Sidney Sussex.....	720*	{ 18 is to be the number of foundation scholarships* as a <i>minimum</i> ; the value 40 <i>l.</i> per annum each
Downing .....	—	{ "The annual value of a foundation scholarship will be 50 <i>l.</i> , with the addition, in some cases, of rooms rent free and allowance for commons"

*Note.*—The particulars given above have been abstracted from the very serviceable little book before mentioned entitled the "Student's Guide to the "University of Cambridge," q. v., pp. 292 *et seq.* It will be seen, on reference to this manual, that there are many emoluments which the various colleges hold at their disposal for the benefit of deserving students, in addition to the "open" scholarships noted in the statement. The aggregate value of the open scholarships is over 27,000*l.* a-year; but, as will be seen on reference to the second column of the table, the total value in some cases appears not to be known.—ED. S. J.



*Exhibitions and Scholarships attached to the Public and other Schools in England and Wales, and tenable by Students from these Schools in the University of Cambridge.*

(From "Liber Cantabrigiensis," parts 1 and 2.)

County.	School.	Number of Exhibitions.	Yearly Value.	Tenure.	At what College.
Bedfordshire ....	Bedford Free Grammar	8	£ s. d. 80 - -	4 years	Unrestricted
Buckingham- shire.....	Eton College .....	24	80 - -	{ during resi- dence	{ King's
		1	—	5 years	Unrestricted
		1	45 - -	{ till 24 yrs. of age	—
		2	40 - -	4 years	Unrestricted
		1	36 15 6	5 "	"
		1	42 - -	4 "	"
		1	51 10 -	{ till 24 yrs. of age	{ "
		1	42 - -	4 years	King's
		1	60 - -	4 "	Unrestricted
		1	25 (about)	3 "	"
Cambridgeshire	Wisbeach Free Gram. ....	3	70 - -	—	Magdalene
Cheshire .....	Chester Cathedral Gram.	2	5 - -	till B.A.	Unrestricted
		1	80 - -	—	"
	Macclesfield Free Gram.	2	50 - -	3 years	"
Cumberland ....	St. Bees " .....	3	28 - -	—	Pembroke
	Stockport Gram. ....	2	50 - -	3 or 4 yrs.	Unrestricted
Derbyshire .....	Ripton .....	2	50 - -	3 years	"
	Chesterfield Gram. ....	1	10 (about)	—	"
	Derby Free Gram. ....	1	—	—	St. John's
		2	50 - -	—	Emmanuel
Devonshire .....	Exeter " .....	6	40 - -	7 years	Unrestricted
		2	25 - -	—	St. John's
		1	40 - -	5 years	Unrestricted
	Tiverton " .....	3	60 - -	3 "	Sidney Sussex
		1	30 - -	—	"
	Kingsbridge Free Gram.	1	50 - -	4 years	Unrestricted
	Ashburton " ....	1	4 - -	4 "	"
		1	6 - -	—	"
	Crediton " ....	3	—	—	"
	Tavistock Gram. ....	1	40 - -	—	"
Dorsetshire .....	Sherborne King's Gram.	4	40 - -	4 years	"
	Dorchester Free Gram.....	2	30 - -	3 "	"
		1	7 10 -	—	St. John's
Durham .....	Durham Gram. ....	2	10 - -	4 years	Unrestricted
		*1	16 - -	till M.A.	Emmanuel
		3	30 - -	4 years	St. John's
	Houghton - le - Spring } Gram.....	1	30 - -	3 "	Unrestricted
Essex .....	Colchester Free Gram....	1	7 - -	—	St. John's
	Dedham " ....	2	35 - -	5 years	"
Gloucester- } shire.....	Wootton - under - Edge } Gram.....	—	60 - -	4 "	Unrestricted
Hampshire .....	Winchester College .....	8 (about)	50 - -	4 "	"
		5 ( " )	30 - -	4 "	"
	Ringwood Gram. ....	1	6 - -	4 "	"
	Basingstoke .....	1	30 - -	—	"

\* Scholars are eligible also from Newcastle-on-Tyne Grammar School.

*Exhibitions and Scholarships attached to Public and other Schools—Contd.*

County.	School.	Number of Exhibitions.	Yearly Value.	Tenure.	At what College.	
Herefordshire...	Hereford Cathedral .....	12	£ s. d. 50 - -	3 years	St. John's	
		8	40 - -	4 "	"	
Hertfordshire ....	Luston Free Gram. ....	1	52 10 -	4 "	Unrestricted	
		8	40 - -	4 "	"	
Kent .....	Canterbury King's .....	2	30 - -	—	Corpus Christ	
		1	6 13 4	—	"	
		1	10 - -	—	"	
		4	6 - -	7 years	Unrestricted	
		2	60 - -	4 "	"	
		1	9 - -	7 "	"	
		1	15 - -	1 "	"	
		Rochester Cathedral } Gram. ....	4	30 10 -	—	"
		1	5 - -	—	"	
		Tunbridge Free Gram.....	16	100 - -	4 years	"
		1	36 - -	4 "	"	
		6	16 - -	7 "	"	
		2	50 - -	—	Jesus	
		2	6 - -	—	St. John's	
		1	2 13 4	—	Unrestricted	
		1	20 - -	—	"	
Lancashire .....	Cranbrook Gram. ....	Exhibitions suspended, 1855	65 - -	4 years	Unrestricted	
Leicestershire ....	Lewisham Free Gram. ....	2	20 - -	4 years	St. John's	
Leicestershire ....	Sevenoaks .....	1	20 - -	4 years	St. John's	
Leicestershire ....	Sutton Valence Free } Gram. ....	1	20 - -	—	"	
Leicestershire ....	Blackheath Proprietary	1	50 - -	3 "	Unrestricted	
Leicestershire ....	Manchester Free Gram. { number variable }	60 - -	4 "	4 "	"	
Leicestershire ....	Bolton Free Gram. ....	2	60 - -	4 "	Unrestricted	
Leicestershire ....	Blackrod Gram. ....	1	65 - -	4 "	Pembroke	
Leicestershire ....	Bury Free Gram. ....	2	40 - -	—	St. John's	
Leicestershire ....	Liverpool Collegiate } Institution .....	3	40 - -	3½ years	Unrestricted	
Leicestershire ....	Ashby-de-la-Zouch Gram.	1	50 - -	3½ "	"	
Leicestershire ....	Leicester Collegiate .....	2	40 - -	till B.A.	"	
Leicestershire ....	Loughborough Gram. ....	2	25 - -	3 years	Unrestricted	
Leicestershire ....	Market Bosworth Free } Gram. ....	2	30 - -	till M.A.	Jesus	
Leicestershire ....	Grantham Free Gram. ....	2	50 - -	till B.A.	Emmanuel	
Lincolnshire ...	Grantham Free Gram. ....	4	80 - -	4 years	Unrestricted	
Lincolnshire ...	Grantham Free Gram. ....	8	From 30 - - to 50 - -	4 "	"	
			1	40 - -	3 "	St. John's
2*	45 - -	—	Sidney Sussex			



*Exhibitions and Scholarships attached to Public and other Schools—Contd.*

County.	School.	Number of Exhibitions.	Yearly Value.			Tenure.	At what College.
			£	s.	d.		
Lincolnshire— <i>contd.</i>	Stamford Free Gram. ....	1	20	—	—	till B.A.	St. John's
		1	12	—	—	—	Unrestricted
		2	50	—	—	4 years	"
	Louth " ....	1	6	8	6	—	Jesus
	Boston Gram. ....	2	40	—	—	—	Unrestricted
Middlesex .....	Butterwick Free Gram.	1	20	—	—	4 years	"
	Westminster .....	12	40	—	—	till B.A.	Trinity
		4	8	—	—	—	Unrestricted
		1	2	—	—	—	"
		1	15	—	—	—	"
		1	16	10	—	—	"
		1	61	5	—	—	"
		1	60	11	6	—	"
	London, St. Paul's .....	1	120	—	—	4 years	"
		1 or more	50	—	—	4 "	"
		4	100	—	—	4 "	Trinity
		4	80	—	—	4 "	"
		5	13	—	—	—	"
		2	10	—	—	—	St. John's
		1	30	—	—	till B.A.	Corpus Christi
		1	36	—	—	"	"
	London, Christ's Hospital	3	80	—	—	4 years	Unrestricted
		2	30	—	—	—	"
		4	50	—	—	—	"
		4	6	—	—	—	"
		2	12	—	—	—	Emmanuel
		1	5	—	—	—	Unrestricted
		2	7	—	—	till M.A.	"
		1	8	—	—	—	"
		1	6	13	4	—	"
	London, Charter House {	number	80	—	—	4 years	"
	not limited }						
		2	40	—	—	—	"
	City of London.....	5	50	—	—	—	"
		1	30	—	—	4 years	"
		2	20 (about)	—	—	—	"
	London, Merchant Tay- lors' .....	—	50	—	—	—	Pembroke
		1	80	—	—	7 years	"
	London, Mercers' Gram.	2	70	—	—	5 "	Unrestricted
	Islington Proprietary Gram.....	2	30	—	—	4 "	"
	Highgate Gram. ....	4	50	—	—	4 "	"
	Harrow .....	9	30	—	—	4 "	"
		2	10	—	—	4 "	Gonville & Caius
		2	52	10	—	4 "	"
	Edmonton Gram. ....	1	7	—	—	4 "	Unrestricted
	Kensington Proprietary	3	50	—	—	3 "	"
Norfolk .....	Norwich Free Gram. ....	3	50	—	—	3 "	"
		1*	18	—	—	—	Corpus Christi
		1†	24	—	—	—	"

\* Scholars from Aylsham and Wymondham Schools are eligible.

† Scholars from Aylsham School are eligible.

*Exhibitions and Scholarships attached to Public and other Schools—Contd.*

County.	School.	Number of Exhibitions.	Yearly Value.	Tenure.	At what College.
Norfolk— <i>contd.</i>	King's Lynn Gram. ....	1	£ 6 — —	4 years	St. John's
		2	2 — —	—	Unrestricted
		1	3 6 8	5 years	Trinity
		2	4 — —	—	Emmanuel
Northampton- shire .....	Holt Free Gram. ....	—	20 — —	—	Unrestricted
	Peterborough Cathedral	2*	30 — —	—	St. John's
	Oundle Free Gram. ....	3	50 — —	3 years	Unrestricted
		2	4 — —	—	"
Northumber- land .....	Newcastle - on - Tyne } Gram. ....	2	5 — —	—	"
		2	10 — —	4 years	"
		2	80 — —	4 "	"
		2	80 — —	4 "	"
Nottingham- shire.....	Newark - upon - Trent } Free Gram. ....	2	80 — —	4 "	"
		2	80 — —	4 "	"
		2	80 — —	4 "	"
		2	80 — —	4 "	"
Rutlandshire	Oakham Free Gram. ....	12	40 — —	—	"
		4†	24 — —	—	Emmanuel
		4†	32 — —	—	Sidney Sussex
		4†	26 — —	—	St. John's
Salop .....	Uppingham Free Gram. Shrewsbury "	4†	20 — —	—	Clare
		12	40 — —	—	Unrestricted
		1	17 10 —	4 years	St. John's
		2	32 17 6	—	"
Somersetshire ...	Bristol " ....	4	50 — —	—	"
		4	63 — —	—	Magdalen
		2	30 — —	—	"
		1	23 — —	—	Unrestricted
Staffordshire ....	Newport Free Gram. ....	4	20 — —	4 years	"
		4	20 — —	4 years	"
		3	50 — —	3 "	"
		2	60 — —	4 "	"
Suffolk .....	Bury St. Edmunds Gram.	4	30 — —	—	"
		4	30 — —	—	"
		3	25 — —	4 years	"
		3	25 — —	4 years	"
Surrey .....	Ipswich Gram. ....	1	25 (about)	—	"
		4	40 — —	4 years	"
		4	40 — —	4 years	"
		3	20 — —	3 "	"
Sussex .....	Southwark Free Gram.	2	20 — —	—	"
		2	20 — —	—	"
		1	50 — —	4 years	"
		1	12 — —	7 "	"
Warwickshire ....	St. Olive's " ..	4	80 — —	3½ "	"
		4	80 — —	3½ "	"
		3	not less than 20 — —	3 "	"
		3	nor above 30 — —	3 "	"
Sussex .....	Lewes Free Gram. ....	1	30 — —	—	"
		1	30 (about)	—	"
		1	30 (about)	—	"
		1	30 (about)	—	"
Warwickshire ....	Shoreham, St. Nicholas } College .....	number not fixed	25 — —	—	"
		26	60 — —	4 years	"
		10	50 — —	4 "	"
		6	5 — —	3 "	"
Warwickshire ....	Coventry Free Gram. ....	6	56 — —	4 "	"
		6	56 — —	4 "	"

\* Scholars from Oundle School are eligible.

† Scholars from Aylsham and Wymondham Schools are eligible.

‡ Scholars from Uppingham School are entitled to compete for the sixteen exhibitions at Clare, St. John's, Sidney, and Emmanuel Colleges, as well as Scholars from Oakham School.



*Exhibitions and Scholarships attached to Public and other Schools—Contd.*

County.	School.	Number of Exhibitions.	Yearly Value.	Tenure.	At what College.
			£ s. d.		
Warwickshire— <i>contd.</i>	Stratford - on - Avon } Free Gram.....	1	30 (about)	—	Unrestricted
	Leamington College .....	1	40 — —	3 years	"
Westmorland ....	Houtham Free Gram. ....	2	45 — —	—	"
		4	70 — —	—	Magdalen
	Kirkby Lonsdale Free } Gram. ....	2	30 — —	—	Christ's
		1	20 — —	—	"
Wiltshire .....	Kirkby Stephen Free } Gram. ....	2	3 6 8	7 years	Unrestricted
	Marlborough Free Gram.	8	40 — —	4 "	St. John's
		12	50 — —	3 "	"
	Marlborough College ....	3	50 — —	3 "	Unrestricted
Worcestershire	Stourbridge Free Gram.	3	40 — —	3 "	"
	Biverley " ....	1	3 — —	5 "	"
Yorkshire .....		1	4 — —	—	St. John's
		3	6 13 4	—	Unrestricted
		1	3 — —	till M.A.	"
		1*	10 — —	—	Corpus Christi
		2	16 — —	—	St. John's
	Bowes Free Gram. ....	1	60 — —	—	Pembroke
	Giggleswick Free Gram.	1	40 — —	—	Unrestricted
		2	50 — —	—	Christ's
	Halepan Gram. ....	4†	70 — —	—	Magdalen
	Kingston-upon-Hull } Free Gram.....	1	40 — —	3 years	Unrestricted
		1	50 — —	—	Clare
	Leeds Free Gram. ....	4	50 — —	—	Unrestricted
		4	70 — —	—	Magdalen
	Pocklington Gram. ....	4	40 — —	3 years	St. John's
	Richmond " ....	2	4 — —	till B.A.	Unrestricted
	Rishworth " ....	2	150 — —	—	"
	Sedbergh Free Gram. ...	6	33 6 8	3 years	St. John's
		1	20 — —	—	Christ's
		1	?	—	St. John's
	Shipton - in - Craven } Gram. ....	1	30 — —	—	Christ's
	Thornton, Free Gram....	5	4 — —	—	Unrestricted
	Wakefield " ....	3	80 — —	4 years	"
		2	50 — —	{ till B.A. } or M.A.	Clare
	York, St. Peter's Cathe- } dral .....	3	50 — —	3 years	Unrestricted
Glesey .....	Beaumaris Free Gram....	2	4 10 —	—	Jesus
	Carmarthen " ....	1	?	—	Queen's
Marvonshire	Bangor " ....	1	40 — —	3 years	St. John's
	Ruthin Gram. ....	{ number not fixed }	20 (about)	till B.A.	Unrestricted
Northamptonshire ...		1	40 — —	3 years	St. John's

\* This exhibition is also tenable by a student at St. John's College.

† These exhibitions are tenable also by scholars from Leeds and Haversham Schools.

*Exhibitions and Scholarships attached to Public and other Schools—Contd.*

County.	School.	Number of Exhibitions.	Yearly Value.	Tenure.	At what College.
Monmouthshire	Monmouth Free Gram.	2	£ s. d. 30 — —	3 or 4 yrs.	Unrestricted
Isle of Man ....	King William College ....	3	30 — —	4 years	„
Jersey .....	L. Boudain's Exhibi- } tion..... }	number } not fixed }	80 — —	3 „	„
Guernsey.....	Elizabeth College .....	1	30 — —	4 „	„
		1	15 — —	4 „	„

*Note.*—The list of exhibitions, &c., was collected in 1854 from the most trustworthy sources and application was made to the Masters of Schools for correction and verification of the facts which was not in all cases granted, so that some exhibitions are imperfectly stated, and some perhaps, inaccurately. The alterations made by recent legislation at Cambridge have been duly noted in the proper places respecting exhibitions held at colleges. Other alterations since 1854 have doubtless been made in exhibitions at those schools which have received new schemes for their management from the Court of Chancery.



MISCELLANEA.

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I.—*The Indian Budget of 1862-63 and 1863-64.*

FROM the *Economist* of the 6th June, 1863.

The passages of the original article which have been omitted from this reprint, in nowise qualify or change the import of the statistical facts which are retained.

“The Budget of Sir C. Trevelyan has now been received in this country, and it enables us to lay before our readers, not indeed a complete or perfect account of Indian finance, but still a far more complete and satisfactory account than any which we have as yet been able to lay before our readers. *From actual facts* we are now justified in saying, what before we never were justified in saying, that the *Indian deficit is extinguished*. Many facts may be and still are uncertain as to Indian finance, but so much as this we can now say with perfect confidence.

\* \* \* \* \*

“The last point of real certainty in Indian finance is the 30th April, 1862, and even this Sir C. Trevelyan now gives us for the first time. If we had written last week, we should have been obliged to say that the last day of real certainty was the 30th April, 1861. And it is on the data afforded by these ‘actuals,’ as Indian financiers call them—these ascertained and verified figures ending the 30th April, 1862—that we base our assertion that the Indian deficit is now at an end. Our readers should remember how great that deficit was. In the year 1858-59, the year before Mr. Wilson’s mission to India, the figures were :—

	1858-59.
	£
Expenditure.....	49,642,359
Revenue .....	36,060,788
	<hr/>
Excess of expenditure over income ....	13,581,571
	<hr/>

Now, in the last year of ascertained information, 1861-62, the figures are changed to the following :—

	£
Expenditure.....	43,980,100
Revenue .....	43,829,472
	<hr/>
Excess of expenditure only .....	150,628
	<hr/>

And there is no doubt that Indian finance has improved during the past year (though, from the conjectural element contained in the accounts, details are dubious), we may say with confidence that this great deficit of thirteen millions and a half has been at last annihilated.

“Our readers will ask how this marvellous financial exploit has been achieved. It has been attained by an enormous reduction of expenditure, and a perhaps, under the circumstances, yet more remarkable augmentation of revenue. The military expenditure in India

	£
In 1858-59 was .....	21,080,948
„ ’61-62 „ .....	13,681,900
	<hr/>
Being a decrease of .....	7,399,048
	<hr/>

“Other branches of expenditure, as the police and education, have indeed increased, and the actual reduction of the total expenditure is only 5,700,000*l.* The remainder of the deficit of thirteen millions and a half has been filled by the augmentation of revenue, which it is not very easy to describe with precision. In English finance, we have an annual estimate of the productiveness of ‘taxes imposed’ and ‘taxes repealed,’ but Indian financiers have as yet nothing of the kind. It would be very interesting, and it ought to be very possible, to say exactly how much of this augmented revenue is due to the increased productiveness of old taxes, and how much to the yield of new taxes. The present accounts, however, do not enable us to distinguish between the two with any approach to accuracy. We can however perceive that the entire augmentation is to be unequally divided between four principal heads:—

“First. The improvement of the land revenue. Since the commencement of the Russian war the productiveness of the industry of India has augmented wonderfully. Her exports to England were—

	£
In 1854 .....	10,672,862
„ ’59 .....	15,244,869

And the effect of the American civil war has been of the same kind, and has been equally great. The exports from India to England were—

	£
In 1860 .....	15,106,596
„ ’61 .....	21,958,947

The enormous increase of productive power has told upon the wealth of India and upon the revenue of India. The prosperity of agriculture has augmented wonderfully, and in consequence of that prosperity there has been a great augmentation, amounting to more than 2,000,000*l.* in the land revenue.

\* \* \* \* \*

“Secondly. There has been a great augmentation in the salt revenue. This is the substitute in India for our tea and sugar duties. This is the duty which falls on the mass of the population, which in the bulk and in the main is paid by the poor; or rather, as salt is one of the greatest necessities of life, a tax on it is a far more stringent tax on the lower classes than our tea and sugar duties, which are only *semi*-necessaries, essential by habit, and for the purposes of an accustomed life, but not necessary to the simple needs of a physical existence. The duty on salt was raised in India in 1859, and again in 1861, and the yield of the tax has augmented in both cases, but the exact amount of augmentation the figures before us do not enable us to specify with accuracy.



“Thirdly. There has been a large increase in the stamp duties, a sort of impost which seems to excite less odium and brings more money in India than almost any other.

“Lastly. There has been the produce of between 1,500,000*l.* and 2,000,000*l.* of Mr. Wilson’s income tax.

\* \* \* \* \*

“We have now to speak of Sir C. Trevelyan’s Budget, properly so called. We have as yet been speaking only of the period ending 30th April, 1862, where actual results also end, and where conjecture more or less begins. There are two years subsequent to this in Sir C. Trevelyan’s Budget—the first of these is the year ending 30th April, 1863, the year just over. In this he tells us that, according to the ‘regular estimate,’ the estimate of which we have quoted the description—

	£
The revenue was or might be .....	45,105,700
„ expenditure .....	44,408,532
	<hr/>
Surplus .....	697,168
	<hr/>

“But we own, we regard these figures with little interest. They have not the interest of assured truth; they are not verified history; they are not fit data for retrospective opinion. On the other hand they are not, and are not intended to be, the basis of an immediate practical result. A Budget, properly so called—an estimate of the anticipated expense and the anticipated income of next year—is by definition uncertain, for it is an anticipation and prognostication; but it is in the highest degree practical, for, according to its figures, new taxes are imposed and old taxes are removed. A retrospect over a year really past, about which a Finance Minister cannot give ascertained figures, has neither the interest of pure truth, nor the interest of pressing importance.

“The anticipation of Sir C. Trevelyan for the year 1863-64—the year to come—is a true budget, and as such well deserves attention. He estimates—

	£
A revenue of .....	45,306,200
An expenditure of .....	44,490,425
	<hr/>
	815,775
	<hr/>

As last year’s accounts are still in an unreliable and unverified state, we cannot be very confident as to the precise anticipations of next year’s. But, as far as we can judge, and subject to this fundamental objection which attaches to the system of Indian account-keeping, we see no reason to doubt that some such sum as Sir Charles speaks of will really be at his disposal. He has dealt with it thus:—

	£
By an abolition of the import duty on iron, a reduction of the duty on beer to a nominal one, and of the duty on wine to a uniform duty, of } .....	50,000
By a reduction of the income tax from 4 per cent. to 3 per cent., which would on the whole year amount to 380,000 <i>l.</i> , but as it will commence in August next } .....	285,000
	<hr/>
Total surplus disposed of.....	335,000
Leaving an anticipated surplus for the year .....	480,775
	<hr/>
	815,775
	<hr/>

“In comparison with the vast deficit which has been cured, these small charges are so trivial that it seems scarcely needful to dwell upon them, and we are by no means insensible to the arguments derived from the circumstances of the present moment which Sir C. Trevelyan has urged.”

\* \* \* \* \*

GENERAL ABSTRACT STATEMENT of the REVENUES and CHARGE of INDIA,  
for the Years 1861-62, 1862-63, and 1863-64.

Revenues and Receipts.	Actuals, 1861-62.	Budget Estimate, 1862-63.	Regular Estimate, 1862-63.	Budget Estimate, 1863-64.
	£	£	£	£
Land .....	19,684,670	19,242,700	19,430,000	19,708,900*
Sayer and forest .....	460,728	538,000	577,000	250,000†
Abkaree .....	1,786,157	1,807,300	1,885,000	1,839,300
Assessed taxes .....	2,054,696	1,583,100	1,789,800	1,306,200‡
Customs .....	2,876,139	2,475,000	2,387,500	2,339,600‡
Salt .....	4,563,081	5,054,700	5,337,500	5,402,400
Opium .....	6,359,269	6,300,000	7,850,000	8,000,000
Stamps .....	1,693,217	1,850,000	1,532,900	1,523,600
Mint .....	380,735	257,100	368,100	350,000
Post office .....	402,135	480,900	430,000	430,000
Electric telegraph .....	73,452	70,700	82,400	85,000
Law, and justice and police .....	511,513	493,000	518,400	680,200
Marine .....	155,723	200,000	278,600	350,000
Public works .....	588,858	650,000	607,500	600,000
Tributes and contributions....	780,162	685,200	691,000	744,000
Miscellaneous—civil .....	468,500	450,000	400,000	450,000
„ military .....	956,219	800,000	900,000	822,000
Interest .....	34,218	33,500	40,000	90,000
Total revenues and receipts } .....	43,829,472	42,971,200	45,105,700	44,971,200
Deficit .....	150,628	Surplus	Surplus	Surplus

	£
* Land revenue .....	19,384,500
Items added from sayer .....	324,400
Total .....	<u>19,708,900</u>

† Forest revenue only, excluding sayer, 324,400*l.* added to the land revenue.

‡ Previously to the reductions of taxation, these items stood as follows:—  
assessed taxes, 1,591,200*l.*; customs, 2,389,600*l.*



GENERAL ABSTRACT STATEMENT—*Contd.*

Expenditure.	Actuals, 1861-62.	Budget Estimate, 1862-63.	Regular Estimate, 1862-63.	Budget Estimate, 1863-64.
	£	£	£	£
Allowances, refunds, and drawbacks .....	341,538	230,700	371,700	270,800
Land revenue (including forest), and Abkaree ....	2,030,489	2,266,700	2,230,000	2,354,500
Assessed taxes .....	121,043	60,000	76,400	51,400
Customs .....	243,547	253,800	260,800	244,300
Salt .....	646,931	725,600	556,500	293,100
Opium .....	1,449,465	2,100,000	1,993,500	2,003,500
Stamps .....	68,268	83,000	97,500	91,000
Mint .....	106,688	170,700	200,000	147,500
Post office .....	481,328	600,000	550,000	600,000
Electric telegraph .....	358,223	162,600	380,000	341,200
Allowances and assignments under treaties and engagements .....	1,640,466	1,755,100	1,767,500	1,745,700
Allowances to district and village officers .....	599,682	531,900	535,000	536,200
Miscellaneous .....	20,742	35,300	54,500	50,800
Contingencies, special and temporary .....	—	8,000	25,000	8,400
Army .....	13,681,900	12,200,000	12,466,000	12,646,900
Marine charges .....	686,193	472,000	500,000	307,000
Public works .....	4,742,183	4,260,000	4,600,000	4,995,100
Salaries and expense of public departments .....	1,106,749	1,203,000	1,201,000	1,178,400
Law and justice .....	1,951,217	2,100,000	2,175,000	2,329,700
Police .....	2,163,163	2,051,100	2,100,000	2,280,000
Education, science, and art....	342,593	500,000	400,000	461,600
Political agencies and other foreign services .....	210,670	187,300	200,000	225,200
Superannuation and retired allowances, and gratuities for charitable and other purposes .....	703,297	658,800	702,500	710,000
Miscellaneous .....	209,702	228,600	250,000	262,300
Civil contingencies, special and temporary .....	204,782	118,100	126,000	57,700
Interest .....	3,134,897	3,367,100	3,410,000	3,333,000
Expenditure in India .....	37,245,756	36,329,400	37,228,900	37,525,300
Net expenditure in England .....	5,309,264	4,961,986	5,491,432	5,347,300
Guaranteed interest on railway capital, less net traffic receipts .....	1,425,080	1,500,000	1,688,200	1,617,825
Total expenditure ....	43,980,100	42,791,386	44,408,532	44,490,425
Surplus .....	Deficit	179,814	697,168	480,775

## II.—*Registers of Sickness and Death among the Labouring Poor.*

THE Epidemiological Society has circulated the following statement, with the view of directing public attention to the want of a systematic registration of the disease and mortality prevailing among the working population of England.

“At present there are no means of determining what are the most frequent maladies existing from time to time among the labouring classes in our towns, villages, and rural districts; nor when, or where epidemics are most prevalent, or vary much in frequency and severity in different parts of the country; nor do we know, as we ought to know, the influences of age, sex, condition, and occupation on their development and fatality. Neither can we tell what are the most frequent chronic ailments or incurable infirmities among the poor at different periods of life, which occasion permanent disablement, and life-long chargeability upon the parochial rates, with but one exception, we believe, viz., insanity and idiocy.\* That the amount of sickness from fever, for example, is annually very large, the number of registered deaths abundantly testifies. On the average of the last twenty years, this number exceeds 17,000—a mortality which probably represents upwards of 170,000 persons attacked in the course of the twelve months. The victims, too, are generally among the early adults and the middle-aged, the parents often of young families; hence so many of the children in workhouses are the offspring of persons who have either died from the disease, or who, if they recovered, were reduced to beggary in consequence. The orphans and widows of working men, prematurely cut off in this way, form a considerable proportion of the permanent recipients of parochial aid in every part of the kingdom. The sad prevalence of small-pox in many districts, from the neglect of vaccination, often serves to swell the number. How much the prevalence and fatality of fever and of small-pox may be reduced by due attention to well-known sanitary and hygienic regulations, it is unnecessary in the present day to illustrate. Then again, the great excess of mortality among the children—mainly owing to the circumstance of the other eruptive fevers, and of diseases of the bowels, lungs, &c., being aggravated fourfold by domestic causes of insalubrity—attests the enormous amount of illness in infantile and early life among the poor. There are, moreover, various groups of disease which often cause much suffering and distress, but which very seldom prove fatal, and are, therefore, scarcely indicated in the Registrar-General’s returns, such as maladies of the skin and of the eyes—a not unfrequent cause of protracted disablement; and as both these groups are largely dependent on unwholesomeness of the dwellings, poverty or unsuitableness of diet, neglect of personal cleanliness, &c., it is obvious that they might be easily prevented to a great extent.

“Whatever will diminish the amount of sickness among the working classes, must correspondingly diminish the amount of the parochial taxes, and *vice versa*. That the first of those desirable objects is within our reach admits of no doubt; the results of the Common Lodging-House Act, and the low rates of sickness and death in most public institutions now, as compared with what they used to be, are sufficient proof on this head. Nor are instances wanting in several parts of the country, where a not inconsiderable abatement of the parish charges has recently been effected, by the improved health of the districts. If it be true, as has been stated on respectable authority, that three-fourths of all the actual paupers in the kingdom have become paupers, directly or indirectly, by disease, the large extent of the field for the labour of enlightened beneficence is strikingly apparent.

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\* “On the 1st of January, 1862, the number of insane and idiot paupers was 34,271. Of this number, 18,318 were in country or borough lunatic asylums; 1,193 in registered hospitals or licensed houses; 8,603 in union or parish workhouses; 983 in lodgings or boarded out; and 5,172 resided with relatives.



“It is scarcely possible to over-estimate the benefits to the whole community which would accrue if the attention of parochial boards and other local authorities, as well as of influential residents in a district, were regularly and systematically drawn to the current state of the general health, and to the prevalence or otherwise of epidemic disease among their out-door poor, and also to the hygienic condition of the inmates of their workhouse. In no way could this be so easily or so effectually done as through the returns—were these duly tabulated and arranged—of the medical officers who attend upon the poor in sickness; for none know so well as these gentlemen the evils which sap the health of the labourer, and which so often issue in pauperism and mendicancy. All agree that much of the illness and mortality in humble life is due to circumstances not inevitable or inseparable from mere poverty, but which are superadded to it either from ignorance or wilful neglect, or from causes over which the poor themselves have no control, however capable the evils may be of easy correction or removal.

“There are in England and Wales upwards of seven hundred workhouses, great and small, and six district schools, where pauper children are lodged and fed. The total number of inmates of recent years, has averaged about 140,000 persons, of whom 50,000 are under 16 years of age. In the infirmaries of workhouses, there are usually—besides the ordinary sick wards, the infirm wards for aged men and women, and the nurseries for infants and young children—fever wards, and infectious and foul wards; a fact which alone indicates the prevalence of these maladies throughout the country among the poor. The general death-rate in our workhouses is not known; but that it is very high may be inferred from the fact that, in some years, one in every eleven deaths in London occurs in the metropolitan workhouses. In 1861, the number was 5,755; while the total number in all the civil hospitals of the metropolis was only 3,723. ‘The death of so many persons in the large workhouses demands inquiry,’ remarked the Registrar-General.

“The sanitary condition and arrangements of the workhouses in different parts of the country are reputed to be far from satisfactory; the occasional severe outbreaks of epidemic disease, and the inveteracy of various chronic maladies among the inmates, can only be accounted for in this way. In a late quarterly return of the Registrar-General, the large mortality which occurred in a provincial workhouse was stated to be due ‘to the crowded state of the house, and the defective drainage of the premises.’

“The want of trustworthy information as to the current amount of sickness and death among the out-door and in-door poor has been so much felt, that several efforts have recently been made to obtain the desiderated data in separate districts and localities. The metropolitan medical officers of health attach the utmost value to this subject in the prosecution of their inquiries, and have laboured hard to establish regular statistical returns of disease occurring in the metropolis. The Sanitary Association of Manchester and Salford has also applied itself with great zeal to the same object in respect of their population. At the International Statistical Congress, held in 1860, the importance of the accurate registration of diseases and of their results in hospitals throughout the kingdom was strongly urged in the Public Health Section, and steps were then taken to carry the suggestion into effect as regards these institutions. Such a measure is equally, if not still more, needed in respect of workhouse infirmaries. Among various other matters of great interest to the public health, on which useful information might be obtained from this source, the discovery of the amount of incurable blindness, deafness, and deformity among the poor may be mentioned. Every consideration thus shows how inestimable would be the value of a general and connected system of disease-registration among the pauper population over the entire country.

“The scheme proposed by the Society for this end is, that there should be a monthly return of the number of cases of illness treated by each parochial medical officer, and of the number of deaths among these cases,—arranged upon such a plan as that in the annexed schedule,\* in which a few of the supposed details are

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\* The schedule to the original paper,

entered, and the general results given, to indicate the mode of filling it up. But the exact form best suited for the purpose will doubtless need much consideration. The great object sought for is to turn to useful account the statistical records of disease now required to be made by the medical officer, but which hitherto have been valueless and unknown; and thus to furnish a ready means for ascertaining, from month to month, the nature, the extent, and the gravity of the sickness among the poor, prevailing in different districts of the country, together with the approximate ages of the sick, and a brief notice of the local circumstances affecting the health of the people. That the parochial medical officers would very generally afford willing co-operation in the carrying out of the proposal, the Society anticipate with confidence; none of their professional brethren have shown themselves more active promoters of every reasonable measure for improving the condition of the poor, and for advancing the best aims of the healing art, than these gentlemen. What has been done by the medical officers of the metropolis and of Manchester and Salford, would doubtless be done elsewhere. The labours of each and all, by becoming instrumental to an important scientific and social end, would rise in public usefulness and therefore in public esteem; for whatever exalts a profession in character, is sure to strengthen it, in the long run, in influence and weight.

“By the monthly returns being regularly transmitted to the Poor Law Board, or to the Medical Department of the Privy Council, the current state of the public health over the country would be, to a great extent, ascertained at short intervals of time, and the springing up and threatened prevalence of zymotic diseases would be discovered early, and before the leaven had leavened the whole mass. What is now being done by the Board of Trade for meteorological inquiries might, with no less advantage to the whole community, be done by another Government department for hygienic research. An annual report, founded on these monthly returns, and embodying their chief facts and results, on the same plan as the annual reports of the health of the army and of the navy, could not fail to be of great scientific value. It would, moreover, be directly and immediately useful in various ways. The labours of local boards, for instance, would be aided and guided by the authentic information made accessible; and the results of these labours would become generally known. Thus the good example of one place would stimulate imitation in another; means and appliances, found useful here, would be copied elsewhere; and, in this manner, local experience would be made profitable to the whole community. No other country in the world possesses such facilities for the attainment of the object in view as England, for no other country has such a well organized system of pauper relief; and, when it is considered that nearly six millions sterling are annually expended for this purpose, it is but right that the working of the system should subserve, as far as practicable, the promotion of science, and the advancement of the general good.”

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### III.—*Pensions for the Diplomatic Service.*

The following Paper as to the number of Diplomatic Servants likely to obtain Pensions eventually, and the total amount they would receive, was drawn up by Mr. Samuel Brown, for the use of the Select Committee on the Diplomatic Service, at the request of their chairman, R. Monckton Milnes, Esq., M.P.

“Guardian Assurance Office, 11, Lombard-street, E.C.,  
10th July, 1861.

“In order to obtain any data for estimating the probable amount of pensions for the Diplomatic Service, if they were put on the same footing as under the Civil Service Superannuation Act, I have been obliged to classify all the existing



diplomatic servants in the list with which you have favoured me, and re-arrange them under their supposed ages. This has occupied a considerable time, but I think the facts are now in a useful form for reasoning upon.

"I have assumed the mean age of entry, according to your memorandum, to be 23, although by ascertaining from the peerage some of the real ages, and comparing them, I find they are generally younger than the present ages, as assumed. It is probable that this arises, in several cases, from those who now fill the higher positions not having from the first entered as attachés, but being selected for some higher rank at a younger age than the average of that rank. I am inclined to think that the present ages would appear more nearly correct, if 20 is assumed as the average age of entry as unpaid attaché.

"Having thus classified the present members of the service under age, I have divided them into classes at each age, according to their respective ranks, with the salary enjoyed by each, so as to obtain the average numbers and the average salaries, and then combined them in groups of quinquennial ages and ranks, as follows: in this summary I have left out military and naval attachés, and added the pay of two consuls acting as chargés d'affaires to make up their full allowances. I have also taken the salaries of foreign ministers, as corrected according to your suggestions for the different classes.

NUMBERS *and* TOTAL SALARIES of Existing DIPLOMATIC CIVIL SERVANTS, in 1861, in Quinquennial Periods of Age (assuming the Mean Age of Entry on the Service to be 23).

Ages.	Unpaid Attaché.		Third Attaché.		Second Attaché.		First Attaché.		Secretary of Legation.		Ambassador, Minister, or Chargé d'Affaires.		Total.	
	No.	£	No.	£	No.	£	No.	£	No.	£	No.	£	No.	£
24 .....	2	300	1	—	—	—	—	—	—	—	—	—	3	300
25 to 29 ....	41	800	3	1,250	4	1,750	6	1,750	—	—	—	—	54	3,800
30 „ 34 ....	1	600	2	1,650	6	1,650	14	4,150	1	600	1	1,500	25	8,500
35 „ 39 ....	—	—	—	—	—	—	2	860	9	5,000	4	8,067	15	13,927
40 „ 44 ....	—	—	—	—	—	—	1	250	11	7,750	7	18,458	19	26,458
45 „ 49 ....	—	—	—	—	—	—	—	—	3	1,900	7	17,216	10	19,116
50 „ 54 ....	—	—	—	—	—	—	—	—	1	500	3	4,271	4	4,771
55 „ 59 ....	—	—	—	—	—	—	—	—	1	700	9	23,148	10	23,848
60 „ 64 ....	—	—	—	—	—	—	—	—	—	—	4	12,200	4	12,200
65 „ 69 ....	—	—	—	—	—	—	—	—	1	400	—	—	1	400
	44	1,700	6	2,900	10	2,900	23	7,010	27	16,850	35	84,860	145	113,320
									Aver. £624		Aver. £2,425			

"In your note of the 3rd instant, you suggest that as no one is likely to claim his pension (except for ill health) lower than the rank of secretary of legation, all below may be left out of the calculations; but the number likely to attain a given age, or a given number of years' service under the Superannuation Act, would bear some proportion to the total number who enter upon or remain in the service; thus, if the total number in the service was doubled, it would be reasonable, under any system continued in force, to expect eventually double the number of pensions claimed. This will account for my endeavouring to ascertain the proportion at all ages and ranks, whilst I admit the justice of your remark, as it appears fully illustrated by the above table, and the average age of obtaining a pension.

"In counting the present salaries, I have computed, as you suggested, the salaries of the ministers of the first class at one-half, of the second class at two-thirds, of the third and fourth class at three-fourths, and all the rest in full. The summary of the four classes is as follows:—

	Number.	Total full Salaries.			Average Salary.
		£		£	£
Class I .....	4	32,000	$\frac{1}{2}$ of ditto	16,000	4,000
„ II .....	11	50,200	$\frac{2}{3}$ „	33,466	3,042
„ III .....	13	34,200	$\frac{3}{4}$ „	26,050	2,004
„ IV .....	7	12,125	$\frac{3}{4}$ „	9,344	1,335
	<hr/>	<hr/>		<hr/>	<hr/>
	35	128,525		84,860	2,425

including, in two cases, consuls' salary in full, to make up the total allowances as chargés d'affaires.

“I had some difficulty in ascertaining the ages at which pensions usually begin under the present regulations. The total number of pensions is given as 24, and the total amount at 22,500*l.* per annum, or an average of 936*l.* 10*s.* each, two being in abeyance during profitable service. In ten cases, I have found from the peerage, the ages at the date of granting the pension to be on an average 55 years, and this I think we should not be far wrong in assuming as the mean age of obtaining a pension under the present system. If all were living together at the ages which pensioners may be expected to attain by the English life table, their average present age should be nearly 66 years, but the average of the ten I have alluded to is only 63 years, which leads me to infer that the whole body of pensioners have not yet attained their greatest age, and consequent greatest mortality. In other words, that the pensions under the present system may, under ordinary circumstances, either be expected to increase, or that, as a body, the retired members of the Diplomatic Service do not show so great a longevity as annuitants in general. I am more disposed to the former opinion from observing the relative large proportion of foreign ministers existing between the ages 55 and 60.

“In considering, however, the question what increase may be expected in the total amount of diplomatic pensions if the regulations of the ‘Superannuation Act, 1859,’ be applied to the service, it is requisite to ascertain, first, what would be the average increase of pension to each under the Act, and secondly, how many would be entitled to claim pensions.

“The Act provides, that to persons in established Government service, for whom provision shall not otherwise be made by Act of Parliament, or who may not be specially excepted by authority of Parliament, pensions may be granted

For 10 and under 11 years' service,  $\frac{10}{60}$ ths of salary.

„ 11 „ 12 „  $\frac{11}{60}$ ths „

„ 12 „ 13 „  $\frac{12}{60}$ ths „

and so on increasing by one-sixtieth every year up to 40 years' service, which entitles to two-thirds of the salary, and no further increase. No superannuation to be granted under 60, except on medical certificate of the person being incapable, from infirmity of mind or body, to discharge the duties of his appointment.

“This Act does not interfere with the superannuation allowances granted by the 4th and 5th William IV, c. 24 (25th July, 1834), to civil servants who entered before 5th August, 1829, but inasmuch as the Act, last quoted, does not appear to affect the Diplomatic Service, the pensions for which are regulated by the 2nd and 3rd William IV, c. 116 (16th August 1832), it need not be further considered.

“But the Superannuation Act gives power to the Commissioners of the Treasury, under special circumstances, by warrant, to declare it expedient to appoint persons older than the usual age of entering office, and to add in the warrant any number of years, not exceeding twenty, to the real term of service for superannuation allowances. This would probably apply with equal or greater force to the Diplomatic Service.

“Without reference, then, to the retirement from infirmity, I assume, to be on



the safe side, that no pensions will be granted before 35 or 40 years' service, or at 55 or 60 years of age, to persons entering the service as early as 20. On reference to the table given at the beginning of this letter, it will be noticed that there are now in the service thirteen ambassadors or ministers, and two secretaries of legation at or above the former age, and four ministers and one secretary at or above the latter age, and none of any lower rank. The mean of all the salaries of ambassadors or ministers of various classes appears to be 2,425*l.*, and that of secretaries of legation 624*l.*; but as the proportion at and above 55 years of age existing is 13 of the former to 2 of the latter, the average salaries at the time of retirement may be taken as somewhat above 2,000*l.* (say 2,185*l.*). Assuming that they have completed their full term of service, the average pension, or two-thirds of the salary, would be between 1,400*l.* and 1,500*l.* a-year (1,457*l.*), instead of 937*l.* 10*s.*, as we have noticed under the list of actually existing pensions. If the present number of pensions did not increase under the new regulations, the average increase under each of the twenty-four, would be nearly 520*l.*, or the total increase of charge nearly 12,500*l.* a-year.

“Very nearly the same average increase of each pension would be obtained by comparing two-thirds of the salaries of ministers, corrected according to your suggestion, with the present rate of pensions allotted to the different classes.

	Average Salary.			Pension now Allowed.
	£		£	£
Class I, say .....	4,000	$\frac{2}{3}$ of ditto,	2,667	1,700
„ II, „ .....	3,000	„	2,000	1,300
„ III, „ .....	2,000	„	1,333	900
„ IV, „ .....	1,333	„ say	900	700
			<hr/> 6,900	<hr/> 4,600

The increase, it is perceived, would be about 50 per cent., which does not differ much from the increase I have suggested of 12,500*l.* per annum on the present pensions of 22,500*l.* per annum.

“It is probable, however, that if an increased amount of pension was given at the age of 55 or 60, or after 35 or 40 years' service, a greater number who now remain in active service would retire at those ages, and I have endeavoured to form some idea of the number who would attain those ages, out of the whole number employed in the diplomatic service. By a separate calculation for the numbers represented in my table as living between 20 and 25, between 25 and 30, &c., which differs very little from assuming the proportion living at each age to be nearly the same as in the English life table, I find that out of 130 persons living between 20 and 55, 2·84 (nearly 3) would enter upon age 55, and the total number living together at 55 and upwards, would be eventually rather more than 47 (47·37). At present the number in active service at 55 and upwards is fifteen, and receiving pensions above that age twenty-four, or about 60 per cent. of persons living above 55 are now in the receipt of pensions. I should, therefore, reckon on an increase eventually of at least four or five in the number of pensioners, or about 20 per cent. above the present existing number.

“Between 20 and 60 there appear to be 140, and 5 above 60 in active service. For 140 persons living between 20 and 60, I consider that 2·44 would attain 60, and that the proportion living at 60 and upwards would be eventually about thirty-three. As there are five in active service above 60, to twenty-four receiving pensions, the latter constitute about 80 per cent. of all above 60. This would give an increase of 2½ pensions beyond the 24 now payable, even if all who attain age 60, or 40 years' service, should not, under the new regulations, retire at that age. Should the latter be the case I consider that whilst the diplomatic service is kept at about 140 in active service between the ages of 20 and 60, there would at least be thirty-three persons receiving pensions together; and if these averaged 1,400*l.*

a-year each, the superannuation allowances would amount to 46,000*l.* a-year, instead of 22,000*l.*, now payable.

“If time had permitted, I should have preferred obtaining the ages of all the diplomatic servants, both on the active and retired list, and classified them more correctly; and in giving the opinions I have offered, I must beg for some allowance to be made an account of the imperfect materials with which I have had to work. I do not believe, however, that in broad averages the conclusions would differ much from those I have come to, nor that the retirements from infirmity of mind or body would affect to any great extent the total results.”

#### IV.—*The Mineral Statistics of 1861.*

FROM the *Manchester Guardian* of 15th June, 1863:—

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“Agriculture, mining, and manufactures, we may call the great productive powers which divide between them the vast and various industries of this ‘western edge of Europe’ wherein we dwell. To survey the realm of one of these great powers—the mineral kingdom of Great Britain and Ireland—is our present object.

“We accept as our guide through this region the ‘mineral statistics’ of Mr. Robert Hunt, the keeper of mining records in the Museum of Practical Geology. The figures we are about to quote relate to the year 1861, being the latest period to which the Government tables are brought down.

“The mineral produce of Great Britain and Ireland, so far as returns have been forwarded to the museum in Jermyn-street, appears, in respect of the yield of 1861, to be as shown in the following table, where the eight principal kinds are arranged according to the rank determined by the total value of each, viz:—

	Tons.	Total Value.
		£
Coals (sold and used).....	83,635,214	20,908,803
Iron ore .....	7,215,518	2,302,371
Copper.....	231,487	1,427,215
Lead .....	90,696	1,136,249
Tin .....	11,640	725,560
Pyrites (sulphur ores).....	125,135	79,715
Zinc ore .....	15,770	31,113
Arsenic .....	1,450	10,875
Other minerals .....	2,226,594	887,624
Total quantity and value.....	93,553,504	27,509,525

The produce coming under the head of ‘other minerals’ consists of three or four ores, &c., which, as native, are quite insignificant, in a commercial point of view, from the small quantities found in this country. These are silver ore, valued at 1,471*l.*; nickel, 24*l.*; wolfram, 29*l.*; antimony, 45*l.*; manganese, 2,925*l.*; gossan and ochre, 3,016*l.*; the total of these falling below 8,000*l.* Then there are several sorts of serviceable clays, the more important descriptions, amounting to 690,605 tons by weight, and to 231,801*l.* by value. The list closes with salt, of which 763,335 tons (rock, 67,563; white salt, 695,772) were ‘sent down the river Weaver’ in 1860. In 1861, the total exports were 702,871 tons, valued at



370,168*l*. The full quantity of salt brought to the surface, or otherwise produced, in the United Kingdom, does not appear to be known. The Worcestershire district yielded an annual average of 160,000 tons in 1858, 1859, and 1860.

“Coals stand at the top of the table, as three-fourths by value of our mineral produce annually consists of this article, so indispensable to our manufacturing and maritime supremacy. We therefore learn with something deeper than regret that ‘the rate of exhaustion which is going on over our coalfields still increases. From 3,052 collieries, there was used and sold in 1861, 83,635,214 tons. Two million and a-half tons were wasted in the process of working, and burned at surface on the collieries of Durham and Northumberland alone. The total waste must, therefore, have been very large, although information thereof could not be correctly obtained.’ There is, also, a large waste in the actual consumption of coal in this country for domestic purposes, not alluded to by Mr. Hunt, that is not likely to diminish so long as coals are cheap. At present, we probably burn much more fuel in warming our chimneys than our rooms; but if coals were to be permanently double the price they are now, ingenuity would soon find out the way to utilise that which we now squander.

“The year’s produce from the principal coalfields is shown by the following figures :—

Tons in 1861.	
19,145,000	from Durham and Northumberland.
12,196,000	„ Lancashire.
9,375,000	„ Yorkshire.
7,254,000	„ Stafford and Worcester.
6,691,000	„ South Wales.
5,116,000	„ Derby and Notts.
11,081,000	„ all Scotland.

“It appears that in the same year Ireland only yielded 123,070 tons of coal. In one very important respect coals differ from the other minerals named in the first table—immediately they are brought to the surface they are fit for use. Not so, however, with the metallic minerals. These, as we know, have to undergo the costly processes of the metallurgist before they can be rendered subservient to man’s wants. The dirt and the dross must be separated from the pure metal. One-half of the iron ore raised is waste, and more than nine-tenths of the copper ore. The percentage yield of five metals from their respective ores was as hereunder stated, viz :—

Metals produced.	Tons of Metals.	
Iron, pig.....	3,712,390	or 51 per cent. of the ore
Copper .....	15,331	„ 7 „
Lead .....	65,643	„ 72 „
Tin.....	7,450	„ 64 „
Zinc .....	4,415	„ 28 „

“The gain in value of the separated metal over the unwrought mineral is exhibited by the following extract from the Government tables, to which we have added the rate per cent. of augmented price :—

Metallic Product.	Value.	Addition in Money Value by Metallurgy.
	£	Pr. cnt.
Iron.....	9,280,975	303
Copper.....	1,572,430	10
Lead.....	1,445,255	27
Tin .....	910,762	26
Zinc.....	79,101	154

"To mark this in another manner we will bring the values of the ore in immediate juxtaposition with those of the metal, thus:—Iron, 2,302,371*l.*—9,280,975*l.*; copper, 1,427,215*l.*—1,572,480*l.*; lead, 1,136,249*l.*—1,445,255*l.*; tin, 725,560*l.*—910,762*l.*; and zinc, 31,113*l.*—79,101*l.* Here the figures respectively express the value of the ore and the metal. The aggregate value of all the metalliferous minerals separately designated by Mr. Hunt is 5,720,000*l.* These ores when reduced to the purely metallic state, are worth 13,694,000*l.* This, then, informs us that the metallurgic processes imparted a value of 7,974,000*l.* to the various substances submitted to their agencies.

"Though the precious metals are not found in any large quantities in the rocks or sands of Great Britain, or of Ireland, yet the tables show us that, in the year of which we have been speaking, very appreciable quantities of gold and of silver were extracted from our native mines. Merionethshire produced gold. The Vigea and Clogau Copper Mining Company raised during the year 'from the Clogau Mountain, St. David's lode, 2,886 ounces 3 dwts. of gold, yielding 2,784 standard ounces, value 10,816*l.* 17*s.*' But the report does not state what was the cost of obtaining this gold, and unless we know that, with some degree of exactitude, we cannot judge of the commercial advantage of the discovery. But there would appear to be some sanguine people whose hopes have been stimulated by the success of the Clogau mine; for, according to Mr. Hunt, several companies have been formed 'to work other lodes of a similar character in North Wales.'

"In 1861, the silver obtained from lead that had been raised from British mines amounted to 569,530 ounces, valued at 144,162*l.* This, unlike the gold, is a very steady, if not very large, part of our mining enterprise. We observe that the value of silver extracted in 1860 was 151,173*l.*; the quantity, 549,820 ounces.

"The hundred and odd well-filled octavo pages from which the preceding statistics have been gathered are introduced by some comparative statements of our mineral treasures in 1860 and in 1861. We will set out from this portion of Mr. Hunt's annual contribution to the mineral statistics of the kingdom a few of the principal results, following the order of arrangement employed by that gentleman. The following quantities represent, with the exception of zinc and pyrites, the pure metal produced in each year from native ores—the zinc and sulphur ores are given in their mineral condition:—

	1860.	1861.	Difference in Tons.
	Tons.	Tons.	
Tin .....	6,695	7,450	755 increase.
Copper (fine) .....	15,968	15,331	637 decrease.
Lead.....	63,525	65,643	2,118 increase.
Zinc (ores) .....	15,552	15,770	218 „
Pyrites (sulphur ores)	135,669	125,135	10,534 decrease.
Pig iron .....	3,826,752	3,712,390	114,362 „

"Besides the metals produced in this country from its own mines, a large smelting business is carried on here with several descriptions imported from our colonies and other places abroad. We imported of foreign and colonial tin 508 tons in 1860, and 959 tons in 1861; the value of metallic copper smelted from imported ores was 3,146,398*l.* in 1860, and 3,170,955*l.* in the following year. In 1860 we received from abroad 28,784 tons of zinc, and in 1861, 24,851 tons. The produce of our coalfields in point of money value still keeps ahead of the grand total value of every species of metal yielded by our mines after smelting. The value of the metals was 13,694,000*l.*, and of the coals, 20,909,000*l.*, the two amounts bringing the sum of the mineral harvest of 1861 up to 34,603,000*l.*"

[In addition to the aggregate value of the mineral produce of the year, as stated above, the worth of the earthy minerals is to be considered. Mr. Hunt, in his Report of 1860, has estimated the value of these products, according to the returns



which he collected for the year 1858, at 7,954,075*l.* The principal articles are clay unmanufactured, 385,846*l.*; bricks, tiles, &c., estimated at the cost of production, 2,911,980*l.*; building and other stones, 4,622,924*l.*; and the interesting fossil known as “coprolites,” which is used as a manure, 65,500*l.*—ED. S. J.]

### V.—Separate Parliamentary Indexes.

SINCE the year 1800 the House of Commons have had prepared, from time to time, separate indexes to many of the reports laid before it. These indexes relate to two classes of public documents, Reports from Select Committees of the House, appointed to inquire into special subjects, and Reports from Commissioners discharging, either temporarily or permanently, defined duties. The reports, as well as the indexes, are in several instances out of print, and can only be met with in official and other libraries, where the Parliamentary papers have been preserved from the commencement of the present century; but, in regard to most of those of a recent date they may be obtained through the usual channels. The majority of these reports contain valuable statistical records; and as the existence of the separate indexes is not generally known, it may be serviceable to the readers of this *Journal* to print here a list which, at the instance of the editor, has been obtained from Messrs. Hansard for that purpose. Some idea of the extent and utility of the indexes may be formed by observing the titles and the number of volumes of each set of reports as given in the list.

#### INDEXES TO REPORTS FROM COMMITTEES.

	Vols. Indexed.		Vols. Indexed.
1. Agriculture and Corn Trade (1820-34) .....	6	20. Debtor and Creditor (1816-34) ..	2
2. Brewing, Malting, and Distillation (1804-33).....	4	21. Ecclesiastical Subjects (1810-39) .....	7
3. Bread Assize (1804-24).....	1	22. Education (1814-34).....	5
4. Trade and Manufactures (1802-35) .....	15	23. Finance (1807-29) .....	6
5. Foreign Trade (1820-24) .....	3	24. Municipal Reform (1819-33)....	2
6. Fisheries (1803-33) .....	1	25. East India Affairs (1805-32)....	16
7. Salt (1801-18) .....	1	Continuation (1835-59).....	25
8. Banking, Coinage, Currency, and Exchange (1804-32) ....	4	26. Law and Law Courts (1811-34) .....	6
9. Civil List (1801-33) .....	1	27. Crime, Police, Punishment, and Seditious Practices (1812-34) ..	6
10. Post Office and Postage (1735-1839) .....	14	28. Annuities, Usury, &c. (1812-29) ..	1
11. Colonies and Slavery (1804-34) ..	5	29. Steam Power (1817-34).....	2
12. Emigration (1826-27) .....	2	30. Commerce and Shipping, and Shipwrecks (1810-34) .....	3
13. Poor (1813-33) .....	3	31. Arts and Literature (1805-34) ..	1
14. Poor in Ireland (1819-30).....	2	32. Woods, Forests, and Land Revenues (1829-34) .....	1
15. Children in Factories (1816-32) ..	2	33. Public Offices (1810-34) .....	1
16. Weights and Measures (1814-34) .....	1	34. Highways, Wheels, and Carriages (1806-33).....	3
17. Medicine and Surgery (1807-34) ..	4	35. Prison and Prison Discipline (1811-26) .....	3
18. State of Ireland (1824-32) ....	4	36. Public Buildings (1807-33) ....	2
19. Parliament.—Privilege of Publication (1801-41) .....	12	37. Local Improvements and Taxation (1809-34) .....	5
Continuation (1835-58)....	13		

INDEXES TO REPORTS FROM COMMITTEES—*Contd.*

	Vols. Indexed.		Vols. Indexed.
38. Roads, Bridges, and Harbours (1803-30) .....	4	41. Dignity of the Peerage (1826)	4
39. Local Taxation, Ireland (1815-34) .....	1	42. Army and Navy (1805-33) ....	2
40. Population (1830-33).....	2	43. Public Works, Ireland (1809-34) .....	3
		44. Miscellaneous (1808-34) .....	4

## INDEXES TO REPORTS FROM COMMISSIONERS.

	Vols. Indexed.		Vols. Indexed.
1. Education, Ireland (1814-44)	5	15. Army .....	7
2. Law and Courts of Justice (1810-45) .....	25	16. Naval Inquiry .....	4
3. Roads and Bridges (1800-46)....	7	17. Civil Affairs of the Navy .....	2
4. Accounts, Public (1800-33) ....	8	18. Agriculture .....	1
5. Emigration (1828-47) .....	8	19. Handloom Weavers .....	4
6. West Indies and Mauritius (1832-47) .....	8	20. Factories .....	4
7. Railways (1837-46) .....	7	21. Customs, Excise, Stamps, &c. ....	4
8. Public Works, Ireland (1810-46) .....	11	22. Fees, Public Offices ..	8
9. Colonies (1812-40) .....	12	23. Cathedral and Collegiate Churches .....	2
10. Shannon Navigation (1832-47)	5	24. Poor Laws, England (1835-48)	8
11. East India (1806-47) .....	7	"    "    (1849-57)	3
12. Exchequer Bills (1811-42).....	1	25.    "    Ireland .....	4
13. Revenue Inquiry .....	13	26.    "    Scotland.....	4
14. Excise Inquiry .....	5	27. Lunacy .....	8
		28. Coal Mines .....	8

\* \* *Other Subjects are in progress of Arrangement.*

*Note.*—Several of these indexes, and the reports to which they relate, will be found in the library of the Statistical Society.



## MARRIAGES, BIRTHS, AND DEATHS IN GREAT BRITAIN.

## No. I.—ENGLAND AND WALES.

MARRIAGES IN THE QUARTER ENDED 31ST MARCH, 1863; AND  
BIRTHS AND DEATHS IN THE QUARTER ENDED  
30TH JUNE, 1863.

IN the last quarterly report it was stated that in the period to which it referred the birth-rate had been unusually well maintained. That rate was still higher last quarter; and in all the quarters of all the ten years, 1853-62, only two instances occurred in which it was as high or higher. This fact may be remarked in connexion with the generally healthy state of the population during last year. The marriages in the first quarter of the year were more numerous than in the two previous corresponding quarters, a result which the metropolis appears to have mainly helped to produce. But in taking a general survey of the returns, that which chiefly claims notice is the fact that the mortality, which was high in the first quarter of the year, continued high in the quarter that ended on June 30th.

MARRIAGES.—The marriage-rate in the first quarter of the year was 1·404 per cent., or, as it may be stated, if the same rate were in operation for a year, 1,404 persons would be married in that time out of every hundred thousand of the population. The average rate per cent. in the same quarter in ten years is 1·394. Following the Christmas quarter, in which the greatest number of marriages are

ENGLAND :—MARRIAGES, BIRTHS, and DEATHS, *returned in the Years* 1857-63, *and in the QUARTERS of those Years.*

*Calendar YEARS, 1857-63 :—Numbers.*

Years .....	'63.	'62.	'61.	'60.	'59.	'58.	'57.
Marriages No.	—	163,991	163,706	170,156	167,723	156,070	159,097
Births..... „	—	711,691	696,406	684,048	689,881	655,481	663,071
Deaths..... „	—	436,514	435,114	422,721	440,781	449,656	419,815

QUARTERS of each Calendar Year, 1857-63.

(I.) MARRIAGES :—*Numbers.*

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	35,454	33,976	33,274	35,150	35,382	29,918	33,321
June ..... „	—	40,771	42,012	43,777	42,042	39,890	41,267
Septmbr..... „	—	40,585	39,884	40,541	39,803	38,599	38,669
Decmbr. .... „	—	48,659	48,536	50,688	50,496	47,663	45,840

## QUARTERS of each Calendar Year, 1857-63.

## (II.) BIRTHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	186,653	182,005	172,933	183,180	175,532	170,959	170,430
June ..... „	189,611	185,638	184,820	174,028	175,864	169,115	170,444
Septmbr. .... „	—	172,237	172,033	164,121	168,394	157,445	161,181
Decmbr. .... „	—	171,811	166,620	162,719	170,091	157,962	161,016

## (III.) DEATHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	128,524	122,192	121,215	122,617	121,580	125,819	108,665
June ..... „	118,375	107,555	107,558	110,869	105,631	107,142	100,046
Septmbr. .... „	—	92,225	101,232	86,312	104,216	98,142	100,528
Decmbr. .... „	—	114,542	105,109	102,923	109,354	118,553	110,576

celebrated, the period to which the present returns relate, is that in which they are always found to be fewest.

The number of marriages reported is 35,454 against 33,274 and 33,976 in two previous March quarters. In London marriages were 5,305 and 5,752 in 1861-62; in the present year they rose to 6,226. There was also an increase on both the previous corresponding quarters in the South-eastern Counties, the South-western, and the West Midland Counties, in Yorkshire, and the Northern Counties. Lancashire exhibits a revival in its marriages as compared with those in the first quarter of 1862; for in three periods taken in the order of time they were in that county 5,431, 4,887, and (this year) 5,245. The increase is very considerable in Liverpool and West Derby, which have been comparatively unharmed by the prevailing distress.

The following districts of the cotton manufacture exhibit an increase in the marriages over those of one or both previous quarters:—

March Quarter.	1861.	1862.	1863.
Prescot .....	113	135	145
Ormskirk .....	69	59	76
Chorlton .....	131	93	129
Salford .....	143	125	155
Manchester .....	951	830	1,006
Clitheroe .....	36	28	42
Blackburn .....	259	216	237

The following are the examples of decrease:—

March Quarter.	1861.	1862.	1863.
Warrington .....	84	99	73
Bolton .....	305	314	230
Bury .....	210	173	153
Barton-upon-Irwell .....	81	81	59



ENGLAND:—*Annual Rates per Cent. of PERSONS MARRIED, BIRTHS, and DEATHS, during the YEARS 1857-63, and the QUARTERS of those Years.*

*Calendar YEARS, 1857-63:—General Percentage Results.*

YEARS .....	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
Estmtd. Popln. of England in thousands in middle of each Year....	20,554	—	20,337	20,119	19,903	19,687	19,471	19,257
Persons Married Perct.	—	1·670	1·612	1·628	1·710	1·704	1·604	1·652
Births .... „	—	3·427	3·500	3·461	3·437	3·504	3·366	3·443
Deaths .... „	—	2·211	2·146	2·163	2·124	2·239	2·309	2·180

*QUARTERS of each Calendar Year, 1857-63.*

(I.) PERSONS MARRIED:—*Percentages.*

Qrs. ended last day of	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	1·404	1·394	1·360	1·346	1·422	1·464	1·252	1·410
June..... „	—	1·693	1·610	1·678	1·766	1·716	1·646	1·722
Septmbr. „	—	1·607	1·582	1·570	1·614	1·602	1·570	1·592
Decmbr. „	—	1·975	1·890	1·906	2·012	2·026	1·934	1·880

(II.) BIRTHS:—*Percentages.*

Qrs. ended last day of	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	3·698	3·594	3·644	3·500	3·707	3·631	3·576	3·604
June .... „	3·705	3·587	3·666	3·690	3·512	3·588	3·488	3·555
Septmbr. „	—	3·292	3·356	3·388	3·267	3·389	3·204	3·316
Decmbr. „	—	3·236	3·338	3·272	3·230	3·414	3·205	3·304

(III.) DEATHS:—*Percentages.*

Qrs. ended last day of	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	2·546	2·498	2·447	2·453	2·481	2·515	2·631	2·298
June..... „	2·313	2·191	2·124	2·147	2·237	2·155	2·210	2·087
Septmbr. „	—	1·982	1·797	1·994	1·718	2·097	1·997	2·068
Decmbr. „	—	2·178	2·226	2·064	2·043	2·195	2·406	2·269

In some of the above instances, as in many others throughout the country, fluctuations of the marriages in particular districts are probably caused by movements of the population.

**BIRTHS.**—The annual birth-rate in the June quarter was 3·705 per cent., against the average 3·587. It never happens that as many as thirty-six children are born to a thousand of the population in a year, and in the twenty-four years 1838-61 there occurred only one year (1859) in which there were thirty-five; and it is also a rare occurrence that children are born in a quarter at the rate of 37 to 1,000 of the population *per annum*.

The number of births in the quarter was 189,611, that in the same period of 1862 having been 185,638. Nearly 26,000 children were born in London in thirteen weeks. More than 25,000 were born in Lancashire. There was an increase in the births over those of the corresponding quarter of 1862 in all the eleven divisions, except the North-western, which comprises Cheshire and Lancashire, where a decrease would arise from a reduction of the marriages in last year, and probably from a cause of greater moment, the emigration of heads of families from those counties in quest of employment.

**INCREASE OF POPULATION.**—The births exceeded the deaths by 71,236. Therefore each day in the three months gave on an average a natural increase of 783 to the population. Immigration and emigration modify the result.

It was stated in last Report that the emigration of the March quarter, consisting of 37,806 persons of the English, Scotch, Irish, and other nations, was greater than it had been in the same season since 1854. The Return\* of the Commissioners for last quarter shows that emigration had attained a magnitude that can hardly fail to surprise when the circumstances of the Western world, by which it appears to have been chiefly evoked, are taken into consideration. The number of emigrants rose to 83,290, which is more than in any June quarter since that of 1857. In the same period of 1861 it was about 38,000; in that of last year 47,000. The Australian colonies supply an increasing attraction; British North America also draws a growing number; but of the 83,290 emigrants, 56,436 (of whom at least 40,000 were Irish) chose the United States as their destination.

The English people contributed about a fourth part of the emigration to all parts.

**PRICES, THE WEATHER, AND PAUPERISM.**—The lowest, and highest prices of beef at Leadenhall and Newgate were  $4\frac{1}{4}d.$  and  $6\frac{1}{4}d.$  per lb. sold by the carcase. In the same period of last year they were  $4d.$  and  $6d.$  During the last twelve months the average price of the best quality has not varied. The price of mutton fell. In the June quarter of 1862 the worst and best qualities were  $5d.$  and  $7d.$  per lb.; and they were near those prices in the succeeding nine months, till last quarter, when they were  $4\frac{3}{4}d.$  and  $6\frac{3}{4}d.$  The average price of wheat fell to  $46s. 2d.$  per quarter; that of the best potatoes to  $120s.$  per ton against  $190s.$  in the same quarter of last year. Beef furnishes the only exception to the comparative cheapness of the principal articles of food.

Mr. Glaisher writes that the period of five months that began with December and ended on 30th April, was as warm as any corresponding period in meteorological annals. The first half of the last quarter, viz., from the beginning of April to the middle of May, with the exception of a few days, had a mean temperature which was on an average two degrees in excess daily. After the 17th May, for a period of nine days, it was no less than  $6^{\circ}$  under the average. Again the temperature rose, and was  $3\cdot25^{\circ}$  in excess till 5th June, from which date till the end of the quarter the air was cold.

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\* Return with which the Registrar General has been favoured by the Emigration Commissioners: the number returned as of English origin was 8,773, while the birthplace of 4,884 emigrants was not distinguished; in the above statement a proportional number of these has been added to those returned as of English origin.



The mean temperature of the air in April was 49°; that of May 52°; and that of June 58°. The mean temperature of April was higher than that of the same month in any year since 1844. Days and nights in April were warm; nights in May and days in June were cold.

Rain fell to the amount of 5·6 ins., of which 3·9 ins. fell in June. In the preceding two months of the quarter the rain-fall was scanty.

This account of the weather is derived from the observations at Greenwich.

The pauperism of the June quarter declined, as is usual, on that of the March quarter; but as regards the recipients of out-door relief it was much greater than in the June quarter of 1862. The average numbers of poor persons relieved on the last day of each week, in three corresponding quarters, were as follows:—

June quarter, 1861 .....	In-door, 117,802 .....	Out-door, 713,785
„            '62 .....	„    127,863 .....	„    781,858
„            '63 .....	„    127,852 .....	„    879,241

**DEATHS; AND THE STATE OF THE PUBLIC HEALTH.**—After a period of two years in which the public health was better than usual, the mortality rose in the last three months of 1862, was high in the first three months (the winter quarter) of the current year, and continued above the average in the quarter for which the returns are now made. In this last period the death-rate was 2·313 per cent. per annum, whilst the average was 2·191. With the present exception, a spring quarter has not occurred since the year 1853 in which the rate of mortality was as high as 2·3.

Both town and country testify to an increase of deaths in their respective populations; for the rate in the chief towns was 2·478 (against an average of 2·336), and that which prevailed in small towns and country parts was 2·102 (against 2·031). Summer-like weather in the early year, and cold days or nights striking a sudden chill into the heart of it, produce effects from which neither city nor hamlet is exempt.

That vast town population that resides within “the bills of mortality” suffered in common with the provincial populations, and in its due proportion; for though those complaints that are more directly traceable to meteorological causes, namely bronchitis and pneumonia, were little if in any degree more fatal in the metropolis than usual, both small-pox and scarlatina were very prevalent, and caused numerous deaths. Small-pox carried off 788 persons in London, or nearly 9 daily; scarlatina and diphtheria 1230. Though the former disease destroyed fewer lives than the latter, it was more powerful in inspiring the public mind with a salutary dread. It should not be overlooked that prophylactic measures are available against scarlatina as well as small-pox, and both maladies are subject to modification.

Small-pox was not confined to London; its presence, which assumed in some instances a character of virulence, is announced by Registrars in many and distant parts of the country. The following are the chief districts, parishes, or townships where the attack was of sufficient importance to procure a notice in the reports of the local officers:—In Surrey: Croydon and Godstone. In Kent: Maidstone and Rochester. In Berkshire: Reading and Kintbury. In Bedfordshire: Wing (Leighton Buzzard). In Essex: West Ham, Orsett, Rochford, Manningtree, Colchester, and Sible Hedingham. In Suffolk: Cavendish. In Cornwall: Bodmin, Truro, Redruth, and Penzance. In Warwickshire: Kilsby. In Lincolnshire: Grantham, Market Rasen, and Misterton. In Derbyshire: Derby and Glossop. In Cheshire: Stockport. In Lancashire: West Derby, Wigan, Didsbury, Chorlton-upon-Medlock, Manchester (where it was very prevalent), Ashton, and Oldham. In Yorkshire: Barnoldswick, Ripon, Harrogate, Wetherby, Yeadon, Elland (Halifax), Shipley (Bradford), Bramley, Leeds, Dewsbury, Barnsley, Ecclesall Bierlow, Sheffield, Bramham (Tadcaster), York, Seuloates, Hull, Whitby, and Northallerton. In the Northern Counties: Stockton, Yarm, Bishop, Auckland, and Chester-le-Street. Fear of the disease, minatory notices issued by Guardians,

or the infection of example, have given a useful stimulus to vaccination in many places where it had been opposed by prejudice or had sunk into neglect.

Not only small-pox but also measles and scarlatina attacked the industrial populations both in Lancashire and Yorkshire. Of 287 deaths in the St. Helen's sub-district of Prescot 68 were from measles; and out of 376 in Wigan 72 were from the same disease. In West Leigh a fourth part of the total number of deaths was from measles, which was also very fatal in Bolton. In the sub-district of Oldham-below-Town out of 312 deaths 15 were from small-pox, and 57 from scarlatina. In the North sub-district of Sheffield 23 cases of small-pox and 20 of scarlatina were fatal; and in Brightside (Sheffield) 27 cases of small-pox, 25 of scarlatina, and 20 of measles were attended with the same result.

The mortality of London in the quarter was 2·403 per cent., that of the North-western Division 2·569, that of Yorkshire 2·589. Cheshire and Lancashire constitute the North-western Division; and the death-rate in the latter county apart from the former, was 2·592. Liverpool, Manchester, and other large towns have long invested this county with an unfavourable distinction, which it is hoped the important measure now passed by Parliament for enabling the distressed unions to borrow money for works of public utility will be successfully employed to remove. In the present day the rate of mortality in Lancashire furnishes a striking contrast to that of the South-eastern Counties, which was 1·968 last quarter. To reduce, if not to annihilate the difference, is not an impracticable task.

The deaths in London rose from 15,230 and 15,695 in the June quarter of 1861-62 to 17,417 last quarter. Those in the North-western Counties rose from 17,576 and 18,017 to 19,467; those in Yorkshire from 11,600 and 11,916 to 13,339. The increase in Lancashire and Cheshire in last quarter on the mean mortality of the two previous seasons was 9 per cent., and less than in London and Yorkshire, where it was 13 per cent. Taking particular districts of the cotton manufacture, there was an increase in Oldham; in Manchester and Warrington of 20 per cent.; in Chorlton and Wigan of 25 and 34 per cent. Measles and other epidemics, as has been shown above, were spreading through those parts. On the other hand there was a decrease in Ashton, Preston, and Chorley, amounting in the last two districts to 20 per cent. or more. It is probable that fewer deaths have been registered in many districts in consequence of the emigration or removal of the inhabitants, for doubtless many villages besides Belmont, which the Registrar writes is "almost uninhabited, owing to the badness of trade," complain of empty houses; but in reviewing the whole facts of the present Return, they will be found to support the conclusion which former Reports tended to establish, that sickness has not been aggravated nor the mortality increased by the distress which has prevailed, and which happily to a certain extent has now been subdued. It must be regarded as a providential interposition in favour of the under-fed and half-clad workmen and their families, that the period embracing December and four succeeding months was, in the words of the Meteorological Report, distinguished by a temperature higher than in any corresponding period since 1771.

The leading facts in the financial history\* of the distress may be stated in a few words:—The number of persons dependent on the parochial rates and relief funds was 500,000 before Christmas 1862, when the maximum was attained; at the end of June it was reduced to 256,230. Nearly half the burden is at the present time removed. The expenditure from both sources in December was 289,225*l.* It was reduced in June to 102,241*l.* The loss of factory wages per week, at the end of January, 1863, was 172,018*l.*; at the end of June, 132,553*l.* The decrease in weekly expenditure from the rates and relief funds (the last week in December, 1862, being compared with the last week in June, 1863) has been in six months 20,000*l.* The total expenditure in twelve months from 30th June, 1862,

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\* See Report of the Central Executive Committee (Manchester, July 20th, 1863).



to the same period in 1863, was about 1,676,413*l.*, of which amount 1,054,413*l.*\* was derived from relief funds, and 622,000*l.*, expended on the out-door indigent only, from parochial rates.

ANNUAL RATE of MORTALITY *per Cent.* in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1863-61.

	Area in Statute Acres.	Population Enumerated.		Quarters ending	Annual Rate of Mortality <i>per Cent.</i> in each Quarter of the Years			
		1851.	1861.		1863.	Mean 53-62.	1862.	1861.
In 142 Districts, and 56 Sub-districts, comprising the Chief Towns.....}	3,287,151	9,155,964	10,930,841	March	2·705	2·688	2·661	2·658
				June....	2·478	2·336	2·265	2·271
				Sept. ..	—	2·239	1·977	2·193
				Dec. ....	—	2·454	2·512	2·291
				Year ....	—	2·429	2·354	2·353
In the remaining Districts and Sub- districts of Eng- land and Wales, comprising chiefly Small Towns and Country Parishes }	34,037,732	8,771,645	9,135,383	Year ....	—	1·970	1·894	1·938
				March	2·343	2·287	2·184	2·210
				June...	2·102	2·031	1·949	1·999
				Sept. ..	—	1·694	1·573	1·753
				Dec. ....	—	1·866	1·870	1·790

*Note.*—The three months January, February, March, contain 90, in leap year 91 days; the three months, April, May, June, 91 days; each of the last two quarters of the year 92 days. For this inequality a correction has been made in the calculations, also for the difference between 365 and 365·25 days, and 366 and 365·25 days in leap year.

The improvement in the cotton districts, by which forty-seven local committees have been enabled to suspend operations, has arisen from various causes: the emigration or removal of operatives, the increase of out-door work, the partial revival of industry. The Public Works Act, if adopted and carried into execution with earnestness and goodwill, is expected to provide the wages of labour to a fifth or sixth part of the population who without its aid would be in want. But, notwithstanding present encouragement, the Central Executive Committee takes a desponding view of the coming winter. Those external conditions of the cotton trade from which the ruin of the manufacture sprung, remain unchanged, and there is little prospect of that cheapness of material on which former prosperity was based. Present alleviations of the distress will, some of them, cease when summer and autumn have passed. Private savings are spent, credit exhausted, relief funds diminished. Therefore it is not unreasonable to anticipate that though the distress of the approaching winter may visit fewer hearths, its severity, where it falls, may be greater, because the means of relieving it may be less.

\* A portion of this sum appears to have been expended in May and June, 1862.

ENGLAND:—MARRIAGES *Registered in Quarters ended 31st March, 1863-61; and BIRTHS and DEATHS in Quarters ended 30th June, 1863-61.*

1 DIVISIONS. (England and Wales.)	2 AREA in Statute Acres.	3 POPULATION, 1861. (Persons.)	4 5 6 MARRIAGES in Quarters ended 31st March,		
			'63.	'62.	'61.
			No.	No.	No.
ENGLD. & WALES.... Totals	37,324,883	20,066,224	35,454	33,976	33,274
I. London .....	77,997	2,803,989	6,226	5,752	5,305
II. South-Eastern .....	4,065,935	1,847,661	2,759	2,575	2,425
III. South Midland .....	3,201,290	1,295,497	1,594	1,642	1,557
IV. Eastern .....	3,214,099	1,142,580	1,451	1,438	1,497
V. South-Western .....	4,993,660	1,835,714	3,171	3,072	2,988
VI. West Midland .....	3,865,332	2,436,568	4,129	4,016	3,820
VII. North Midland .....	3,540,797	1,288,928	1,816	1,805	1,810
VIII. North-Western .....	2,000,227	2,935,540	6,060	5,711	6,199
IX. Yorkshire .....	3,654,636	2,015,541	3,926	3,832	3,753
X. Northern .....	3,492,322	1,151,372	2,278	2,120	2,005
XI. Monmthsh. & Wales	5,218,588	1,312,834	2,044	2,013	1,915

7 DIVISIONS. (England and Wales.)	8 9 10 BIRTHS in Quarters ended 30th June,			11 12 13 DEATHS in Quarters ended 30th June,		
	'63.	'62.	'61.	'63.	'62.	'61.
	No.	No.	No.	No.	No.	No.
ENGLD. & WALES.... Totals	189,611	185,638	184,820	118,375	107,555	107,558
I. London .....	25,766	24,851	24,916	17,417	15,695	15,230
II. South-Eastern .....	15,307	14,859	14,853	9,311	8,148	8,239
III. South Midland .....	11,528	11,179	11,428	6,903	6,227	6,484
IV. Eastern .....	10,067	9,730	9,993	6,362	5,508	6,092
V. South-Western .....	15,706	15,282	15,579	10,040	8,809	8,599
VI. West Midland .....	24,113	23,439	23,436	13,966	12,355	12,721
VII. North Midland .....	11,956	11,667	11,795	6,994	6,533	6,962
VIII. North-Western .....	30,004	30,634	29,797	19,467	18,017	17,576
IX. Yorkshire .....	20,450	19,772	19,609	13,339	11,916	11,600
X. Northern .....	12,362	12,082	11,372	7,096	6,815	6,575
XI. Monmthsh. & Wales	12,352	12,143	12,042	7,480	7,532	7,480



## REMARKS ON THE WEATHER

DURING THE QUARTER ENDING 30TH JUNE, 1863.

*By JAMES GLAISHER, ESQ., F.R.S., &c., Sec. of the British Meteorological Society.*

Till May 17th, with the exception of two days at the beginning of April, and five days at the end of April and the beginning of May, the temperature of the air was in excess to the average of  $2^{\circ}$  daily. A period of 9 days followed, comprised between May 18th and May 26th, during which the average daily deficiency was no less than  $6^{\circ}$ ; this was succeeded by one of like duration but of opposite character, the average daily excess being  $3^{\circ}\frac{1}{4}$ ; and from June 5th to the end of the quarter there was a deficiency amounting on the average to  $2^{\circ}\frac{1}{2}$  daily.

The average monthly temperature of the air, from December, 1862, to April, 1863, was  $44^{\circ}\cdot 1$ ; in the years 1821 and 1822 the temperature for the same period was  $44^{\circ}\cdot 2$ , being practically the same as in the present year; in no other similar period, from 1771, has the temperature been so high, so that we may fairly conclude that the temperature for the five months ending April of this year is distinguished as having been as high as any on record. The nearest approach to this high temperature was in the period ending April, 1796, when it was  $43^{\circ}\cdot 4$ ; in 1854 it was  $43^{\circ}\cdot 6$ ; in 1846 it was  $43^{\circ}\cdot 9$ ; and in 1859 it was  $43^{\circ}\cdot 5$ .

The mean temperature of April was  $49^{\circ}\cdot 1$ , being higher than in any April since 1844.

The mean temperature of May was  $52^{\circ}\cdot 0$ , being  $3^{\circ}\cdot 4$  lower than in 1862, and of nearly the same value as in 1861.

The mean temperature of June was  $58^{\circ}\cdot 1$ , being  $1^{\circ}\cdot 8$  higher than in 1862, and  $1^{\circ}$  lower than in 1861.

*The mean high day temperature* in April was  $4^{\circ}\frac{1}{2}$  in excess; in May was nearly of its average value; and in June was  $0^{\circ}\cdot 9$  in defect.

*The mean low night temperature* in April was  $1^{\circ}\frac{1}{2}$  in excess; in May was  $1^{\circ}\frac{1}{2}$  in defect; and of nearly its average value in June.

Therefore both the days and nights in April were warm, and the nights in May; and the days in June were cold.

*The mean temperature of the air* in April was  $2^{\circ}\frac{3}{4}$  in excess; in May  $1^{\circ}$  in defect; and in June  $1^{\circ}$  in defect.

*The temperature of the dew point* in April was  $2^{\circ}\frac{1}{2}$  in excess; in May  $0^{\circ}\cdot 5$  in defect; and in June  $0^{\circ}\cdot 7$  in defect.

*The degree of humidity and the readings of the barometer* differed but very little from their monthly average values in any of the months.

*The mean temperature of the air* at Greenwich in the three months ending May, constituting the three spring months, was  $48^{\circ}\cdot 3$ , being  $1^{\circ}\cdot 9$  above the average of the preceding 92 years.

1863. Months.	Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air—Daily Range.		Water of the Thames				
	Mean.	Diff. from Average of 92 Years.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.		Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.
April .....	49·1	+3·3	+2·8	46·0	+2·6	42·7	+2·6	21·1	+3·0	52·4	In. .274	+·026	Gr. 3·1	+0·2
May .....	52·0	—0·5	—0·9	48·6	—0·6	45·2	—0·4	21·7	+1·5	55·3	·302	—·001	3·4	—0·1
June .....	58·1	0·0	—1·0	53·9	—0·8	50·2	—0·7	20·0	—0·8	61·8	·364	—·009	4·1	—0·1
Mean.....	53·0	+0·9	+0·3	49·5	+0·4	46·0	+0·5	20·9	+1·2	56·5	·313	+·005	3·5	0·0

1863. Months.	Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.				
	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Amnt.	Diff. from Average of 46 Years.		Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.
										At or below 30°.	Between 30° and 40°.	Above 40°.		
April .....	78	-- 1	In. 29·813	+·061	Gr. 543	+ 1	In. 0·4	-1·4	Miles. 260	9	15	6	19·4	46·7
May .....	78	+ 1	29·857	+·090	540	+ 2	1·3	-0·8	235	6	12	13	22·4	53·4
June .....	75	0	29·727	-·063	531	0	3·9	+2·0	207	0	6	24	36·1	53·4
Mean.....	77	0	29·799	+·029	538	+ 1	Sum 5·6	Sum -0·2	Mean 234	Sum 15	Sum 33	Sum 43	Lowest 19·4	Highest 53·4

*Note.*—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.

*Thunder storms occurred or thunder was heard and lightning seen on April 7th at Clifton, Bath, and Stonyhurst; on the 23rd at North Shields; on the 28th at York, North Shields, and Carlisle. On May 13th at Bradford, Stonyhurst, and North Shields; on the 15th at Oxford and Royston; on the 16th at Bradford, Otley, and Banbury; and on the 17th at Eccles. On June 6th at Petersfield, Bath, Camden Town, Great Berkhamstead, Hartwell, and Cardington; on the 7th at Oxford, Thelwall, Eccles, and Wisbeach; on the 8th at Clifton, Great Berkhamstead, Scarborough, and Wisbeach; on the 10th at Clifton, Cardington, Wisbeach, and Reading; on the 12th at Liverpool, Wisbeach, and Thelwall; on the 13th at Grantham; on the 18th at Guernsey and Liverpool; on the 24th throughout the greater part of the country; on the 25th at Brighton; and on the 29th at Scarborough.*

*Thunder was heard but lightning was not seen on April 7th and 10th at Little Bridy. On June 2nd at Cockermouth; on the 6th at Little Bridy, Oxford, and Grantham; on the 7th at Holkham, Norwich, Grantham, Bradford, Stonyhurst, and Harrogate; on the 8th at Holkham and Cockermouth; on the 9th at Stonyhurst, Scarborough, Bywell, and North Shields; on the 10th at Oxford; on the 11th at Wisbeach and Thelwall, near Warrington; on the 12th at Oxford and Stonyhurst; on the 13th at Stonyhurst; on the 16th at Bywell; on the 17th at North Shields; on the 23rd at Oxford; on the 26th and 27th at Little Bridy; on the 28th at North Shields; on the 29th at Norwich; and on the 30th at North Shields.*



ENGLAND :—*Meteorological Table, Quarter ended 30th June, 1863.*

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Range of Tem- perature in the Quarter.	Mean Monthly Range of Tem- perature.	Mean Daily Range of Tem- perature.	Mean Tem- perature of the Air.	Mean Degree of Hu- midity.
	in.	°	°	°	°	°	°	
Guernsey .....	29·684	71·0	43·5	27·5	21·8	9·4	50·7	83
Exeter .....	29·688	76·5	32·0	44·5	35·7	15·4	52·7	70
Ventnor .....	29·680	69·0	37·0	32·0	25·3	10·3	53·9	76
Barnstaple .....	29·660	73·5	33·5	40·0	32·5	14·9	52·1	88
Royal Observatory	29·652	84·0	28·3	55·7	43·7	21·3	53·1	77
Royston.....	29·647	79·0	27·3	51·7	42·8	21·3	52·0	77
Lampeter .....	29·644	74·6	25·0	49·6	40·8	19·1	50·4	80
Norwich.....	29·643	76·0	32·0	44·0	37·6	13·6	52·5	79
Derby .....	29·634	76·0	29·0	47·0	39·0	21·4	52·8	77
Liverpool .....	29·632	69·6	37·6	32·0	22·1	10·4	51·9	76
Wakefield .....	29·634	76·7	34·7	42·0	39·1	19·5	51·9	80
Leeds .....	29·631	78·0	30·0	48·0	37·3	18·4	51·6	75
Stonyhurst .....	29·636	69·7	33·5	36·2	28·2	15·2	49·9	80
Scarborough .....	29·630	69·0	33·0	36·0	27·3	11·5	50·3	82
North Shields ....	29·609	70·0	31·3	38·8	29·2	13·3	48·4	82

10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					Mean Amount of Cloud.	RAIN.	
	Mean estimated Strength.	Relative Proportion of					Number of Days on which it fell.	Amount collected.
		N.	E.	S.	W.			
								in.
Guernsey .....	1·4	10	5	6	9	3·9	27	6·5
Exeter .....	0·8	9	5	9	7	6·5	42	7·6
Ventnor .....	—	4	7	7	12	—	30	5·6
Barnstaple .....	1·4	6	6	8	10	4·6	39	9·2
Royal Observatory	0·4	8	6	6	10	6·7	33	5·6
Royston.....	—	8	3	6	13	6·0	44	4·1
Lampeter .....	0·6	6	5	7	12	7·1	41	8·3
Norwich.....	1·3	7	5	9	9	6·3	34	4·7
Derby.....	—	—	—	—	—	—	42	7·4
Liverpool .....	1·3	7	4	9	10	7·6	42	6·6
Wakefield .....	2·1	6	5	9	11	7·0	36	4·7
Leeds.....	0·2	6	3	9	13	6·2	43	5·1
Stonyhurst.....	0·7	4	5	6	15	7·7	54	14·5
Scarborough .....	2·3	6	3	7	14	—	19	3·2
North Shields ....	2·0	6	5	5	13	6·6	54	6·2

## No. II.—SCOTLAND.

MARRIAGES, BIRTHS, AND DEATHS IN THE QUARTER  
ENDED 30TH JUNE, 1863.

**BIRTHS.**—29,651 births were registered in Scotland during the quarter ending 30th June, 1863, being the annual proportion of 383 births in every 10,000 persons of the estimated population, or 1 birth to every 25 persons. This is a very high proportion, and considerably above the mean birth-rate of the corresponding quarter during the seven previous years, which was only at the rate of 371 births in every 10,000 persons.

Of the 29,651 children whose births were registered during the quarter, 15,185 were males, 14,466 females; which is within the smallest fraction of 105 males for every 100 females, or very nearly the normal proportion of the sexes at birth over all Europe.

The usual difference in the proportion of births to the population in the town and country districts was noticed during the quarter. Thus, in the 126 town districts (which embrace almost all the towns with populations of 2,000 and upwards), 17,211 births were registered, while in the 883 country districts (embracing the remainder of the population of Scotland), 12,440 births occurred; thus indicating an annual proportion of 420 births in every 10,000 persons in the town districts, but only 340 births in a like population in the country districts.

Of the 29,651 births, 26,890 were legitimate, and 2761 illegitimate, the illegitimate being in the proportion of one to every 10·7 births, or 9·3 per cent. of the births illegitimate. As formerly the proportion of illegitimate births was higher in the country than in the town districts; for while 9·1 per cent. of the births were illegitimate in the town districts, the proportion was 9·5 per cent. in the country districts.

**DEATHS.**—17,947 deaths were registered in Scotland during the quarter, being in the annual proportion of 231 deaths in every 10,000 persons of the estimated population. The mean death-rate of the corresponding quarter, during the eight previous years, was only 212 deaths in every 10,000 persons; so that the mortality during the quarter was excessively high.

As usual, the deaths in the town districts were much more numerous, in proportion to the population, than those in the country districts. Thus, in the 126 town districts, 11,105 deaths were registered; while they only amounted to 6,842 in the 883 country districts; thus indicating an annual proportion of 271 deaths in the town districts in every 10,000 persons of the population, but only 186 deaths in the country districts in a like population.

Of the deaths, 6,069 occurred in April, 5,941 in May, and 5,937 in June. It thus appears that the daily deaths numbered 197 in May, but 191 in June; thus exhibiting the extreme anomaly of the *daily deaths in June being six more than during May*, a circumstance which has not previously occurred since the Registration Act came into operation nine years ago; thus proving June to have been a month more fatal to the population than May; whereas, in general, its mortality is much less.

**INCREASE OF THE POPULATION.**—As the births numbered 29,651, and the deaths 17,947, the natural increase of the population by the excess of births over deaths during the quarter would amount to 11,704 persons. From that number, however, has to be deducted the number of persons who emigrated during the quarter. From a return furnished to the Registrar-General by the Emigration Commissioners, it appears that 83,290 persons emigrated from the ports of Great Britain and Ireland. Of these, 5,272 were ascertained to have been of Scottish origin; but to that number 681 must be added as the proportion of persons whose



origin was not distinguished. The total number of Scottish emigrants would thus amount to 5,953, which, deducted from the excess of births over deaths, would leave 5,751 as the increase of the population during the quarter.

**MARRIAGES.**—5,557 marriages were registered in Scotland during the quarter, being in the annual proportion of 71 marriages in every 10,000 persons of the estimated population; a proportion higher than the mean corresponding quarter of the eight previous years, which was only at the rate of 68 marriages in every 10,000 persons. The high marriage-rate, taken in connection with the fact of the marriage-rate having also been above the average during the previous quarter, speaks well for the general prosperity of the country, inasmuch as it is constantly observed that the proportion of marriages steadily fluctuates with that of the commercial prosperity and with the more or less full employment of the working classes.

Like the births and deaths, the number and proportion of marriages, were much higher in the town than in the country districts. Thus, in the 126 town districts, 3,467 marriages were contracted during the quarter, but only 2,090 in the 883 country districts; being the proportion of 84 marriages in every 10,000 persons in the town districts, but only 57 marriages in a like population in the country districts.

Of the marriages, 1,264 were contracted in April, 1,101 in May, and 3,192 in June.

**HEALTH OF THE POPULATION.**—The population has been far from healthy during the past quarter, and the mortality has been considerably above the average of the corresponding quarter of former years. Typhus and gastric fevers, with small-pox and bronchial affections have been prevalent among adults. A regular epidemic of measles has prevailed over all Scotland among the young, while that deadly disease diphtheria, has, in several instances, almost assumed the epidemic form, and has prevailed extensively over the country, largely increasing the deaths.

Attention has been several times directed to the apparent connection between epidemics of small-pox and of measles; deadly epidemics of measles frequently following epidemics of small-pox. Scotland, at the present moment, is exhibiting another instance of this strong connection between the two diseases, measles having followed small-pox, and in some places exhibiting quite an unusual fatality. This circumstance is another strong reason for desiring to see some effective measure carried out for securing the people from small-pox by means of vaccination; for it may happen that, by extinguishing small-pox, we may also be reducing the fatality from measles.

**WEATHER.**—The most noticeable feature in the weather during the second quarter was the continued greater humidity of the atmosphere, the greater number of rainy days, and the greater depth of rain which fell, than during the corresponding quarter of former years. This greater moisture was evidently due to the much greater preponderance than usual of winds from the west and south-west. These winds, coming from the Atlantic, bring with them much watery vapour, and when they form the lower or terrestrial current, as they pass over the land, they deposit a considerable portion of the vapour in the form of rain, and keep the atmosphere in a tolerably humid state. During the second quarter, however, the dry, keen easterly winds usually occur as the leading lower or terrestrial current, and when these arid easterly breezes prevail, the atmospheric humidity is low, and the deposit of rain small.

The much greater prevalence than usual of these moist westerly breezes during the quarter will be at once apparent from the fact, that during the corresponding quarter of the six previous years, winds with an easterly point blew 33 days, winds with a westerly point 34 days. But during the past quarter, the westerly breezes so preponderated, that while easterly breezes blew only on 22 days, westerly breezes blew on 50 days.

SCOTLAND:—MARRIAGES, BIRTHS, and DEATHS *Registered in the Quarter ended 30th June, 1863.*

1	2	2	4	5	6
DIVISIONS. (Scotland)	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
SCOTLAND.....Totals	19,639,377	3,062,294	5,557	29,651	17,947
I. Northern .....	2,261,622	130,422	104	825	548
II. North-Western .....	4,739,876	167,329	161	1,080	808
III. North-Eastern .....	2,429,594	366,783	656	3,287	1,621
IV. East Midland .....	2,790,492	523,822	907	4,788	2,868
V. West Midland .....	2,693,176	242,507	381	2,146	1,270
VI. South-Western .....	1,462,397	1,008,253	2,055	11,689	7,062
VII. South-Eastern .....	1,192,524	408,962	942	4,007	2,498
VIII. Southern .....	2,069,696	214,216	351	1,829	1,272

No. III.—GREAT BRITAIN.

SUMMARY of MARRIAGES, in the Quarter ended 31st March, 1863; and  
BIRTHS and DEATHS, in the Quarter ended 30th June, 1863.

COUNTRIES.	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
England and Wales.....	37,324,883	20,066,224	35,454	189,611	118,375
Scotland .....	19,639,377	3,062,294	5,090	29,651	17,947
GREAT BRITAIN.....	56,964,260	23,128,518	40,544	219,262	136,322



Trade of United Kingdom, 1863-62-61.—*Distribution of Exports from United Kingdom, according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.*

Merchandise (excluding Gold and Silver), Imported from, and Exported to, the following Foreign Countries, &c. [000's omitted.]	First Three Months.					
	1863.		1862.		1861.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
<b>I.—FOREIGN COUNTRIES:</b>						
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland } Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium } Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries) } Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta } Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt } Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco } Western Africa } Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands } Indian Seas, Siam, Sumatra, Java, Philip-pines; other Islands } South Sea Islands } China, including Hong Kong } United States of America } Mexico and Central America } Foreign West Indies and Hayti } South America (Northern), New Granada, Venezuela, and Ecuador } " (Pacific), Peru, Bolivia, Chili, and Patagonia } " (Atlantic) Brazil, Uruguay, and Buenos Ayres } Whale Fisheries; Grnld., Davis' Straits, Southn. Whale Fishery, & Falkland Islands }	£	£	£	£	£	£
	1,840	311,	1,715,	329,	1,601,	241,
	4,295,	3,932,	3,492,	4,193	3,320,	4,356,
	7,211,	3,778,	5,876,	3,764	6,068,	2,856,
	984,	1,789,	834,	1,683,	1,043,	1,876,
	5,471,	2,181,	3,436,	1,145,	3,308,	1,308,
	89,	18,	93,	35,	79,	43,
	302,	202,	283,	249,	152,	272,
	3,	16,	—	25,	—	3,
	408,	127,	243,	287,	235,	543,
	—	—	—	—	—	—
	5,125,	755,	3,735,	777,	2,906,	1,853,
	4,360,	4,303,	5,319,	3,704,	14,046,	4,147,
	400,	394,	242,	108,	156,	206,
	655,	624,	300,	553,	625,	563,
	188,	373,	308,	250,	212,	311,
	1,154,	486,	1,160,	301,	996,	586,
	1,265,	1,138,	852,	1,290,	653,	1,676,
	—	5,	6,	5,	—	3,
<b>Total.—Foreign Countries</b>	33,750,	20,432,	27,894,	18,698,	35,400,	20,843,
<b>II.—BRITISH POSSESSIONS:</b>						
British India, Ceylon, and Singapore } Austral. Cols.—New South Wales and Victoria } " " So. Aus., W. Aus., Tasm., and N. Zea. } British North America } " W. Indies with Btsh. Guiana & Honduras } Cape and Natal } Brt. W. Co. of Af., Ascension and St. Helena } Mauritius } Channel Islands }	5,379,	2,883,	3,103,	3,830,	2,267,	3,204,
	778,	1,761,	378,	1,621,	286,	1,466,
	114,	605,	77,	421,	180,	375,
	509,	521,	923,	268,	593,	329,
	953,	638,	954,	712,	793,	597,
	487,	338,	204,	487,	204,	465,
	16,	92,	21,	94,	17,	112,
	779,	98,	540,	138,	1,012,	129,
	122,	193,	142,	155,	140,	149,
<b>Total.—British Possessions</b>	9,137,	7,129,	6,342,	7,726,	5,420,	6,826,
<b>General Total</b> .....£	42,887,	27,561,	34,236,	26,424,	40,820,	27,669,

IMPORTS. — (United Kingdom.) — First Five Months (*January — May*), 1863-62-61-60-59.—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandize Imported into the United Kingdom.*

(First Five Months.) [000's omitted.] FOREIGN ARTICLES IMPORTED.		1863.	1862.	1861.	1860.	1859.
		£	£	£	£	£
RAW MATLS.— <i>Textile.</i>	Cotton Wool ....	13,924,	5,702,	18,909,	18,752,	12,044,
	Wool (Sheep's)..	3,686,	3,268,	2,849,	3,308,	3,063,
	Silk .....	6,620,	6,162,	4,184,	4,137,	4,568,
	Flax .....	1,050,	1,050,	641,	769,	881,
	Hemp .....	874,	524,	358,	398,	567,
	Indigo .....	767,	734,	425,	676,	707,
		26,921,	17,440,	27,366,	28,040,	21,830,
,, , , <i>Various.</i>	Hides .....	804,	814,	638,	1,218,	747,
	Oils .....	1,377,	1,128,	976,	1,040,	939,
	Metals .....	1,378,	1,490,	1,055,	1,304,	1,151,
	Tallow .....	392,	487,	569,	527,	330,
	Timber.....	1,858,	1,439,	1,413,	1,058,	1,096,
		5,809,	5,358,	4,651,	5,147,	4,263,
,, , , <i>Agretil.</i>	Guano .....	1,167,	315,	879,	626,	339,
	Seeds .....	1,085,	776,	968,	947,	1,011,
		2,252,	1,091,	1,847,	1,573,	1,350,
TROPICAL, & C., PRODUCE.	Tea ... ..	4,907,	4,471,	3,435,	3,811,	2,235,
	Coffee .....	1,200,	926,	669,	793,	419,
	Sugar & Molasses	5,066,	4,756,	4,766,	4,277,	3,900,
	Tobacco .....	650,	370,	465,	312,	277,
	Rice .....	416,	500,	523,	244,	147,
	Fruits .....	105,	127,	312,	251,	140,
	Wine .....	1,816,	1,494,	1,816,	1,783,	841,
	Spirits .....	823,	770,	649,	964,	709,
		14,983,	13,414,	12,635,	12,435,	8,668,
FOOD .....	Grain and Meal..	10,116,	12,836,	15,981,	6,402,	6,752,
	Provisions .....	3,011,	3,208,	2,673,	2,131,	1,155,
		13,127,	16,044,	18,654,	8,533,	7,907,
Remainder of Enumerated Articles .....		1,702,	1,314,	1,307,	1,369,	1,138,
TOTAL ENUMERATED IMPORTS....		64,794,	54,661,	66,460,	57,097,	45,156,
Add for UNENUMERATED IMPORTS (say)		16,198,	13,665,	16,615,	14,274,	11,289,
TOTAL IMPORTS .....		80,992,	68,326,	83,075,	71,371,	56,445,



EXPORTS. — (United Kingdom.) — First Six Months (*January — June*),  
1863-62-61-60-59.—*Declared Real Value, at Port of Shipment, of Articles of*  
*BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.*

(First Six Months.) BRITISH PRODUCE, &C., EXPORTED.		1863.	1862.	1861.	1860.	1859.
		£	£	£	£	£
MANFRS.— <i>Textile.</i>	Cotton Manufactures..	15,542,	15,431,	18,894,	18,580,	18,942,
	„ Yarn .....	2,967,	3,295,	4,458,	4,660,	4,370,
	Woollen Manufactures	6,084,	5,600,	4,961,	5,501,	5,861,
	„ Yarn .....	2,213,	1,573,	1,640,	1,739,	1,133,
	Silk Manufactures ...	874,	1,001,	1,024,	950,	1,022,
	„ Yarn .....	157,	161,	134,	117,	97,
	Linen Manufactures....	2,903,	2,255,	2,039,	2,001,	2,257,
	„ Yarn .....	1,114,	840,	773,	913,	787,
		31,854,	30,156,	33,923,	34,461,	34,469,
„ <i>Sewed.</i>	Apparel .....	1,172,	1,033,	951,	965,	1,013,
	Haberdy. and Milnry.	1,817,	1,592,	1,689,	1,856,	2,158,
		2,989,	2,625,	2,640,	2,821,	3,171,
METALS .....	Hardware.....	1,618,	1,475,	1,640,	1,657,	1,840,
	Machinery .....	1,884,	1,821,	1,905,	1,592,	1,487,
	Iron .....	5,917,	5,071,	5,256,	5,607,	6,331,
	Copper and Brass.....	1,963,	1,293,	1,112,	1,474,	1,197,
	Lead and Tin .....	1,377,	1,347,	910,	1,287,	1,355,
	Coals and Culm .....	1,726,	1,720,	1,727,	1,544,	1,600,
		14,485,	12,727,	12,550,	13,161,	13,810,
Ceramic Manufcts.	Earthenware and Glass	951,	825,	885,	979,	915,
Indigenous Mnfrs.	Beer and Ale .....	887,	814,	830,	1,252,	1,295,
	Butter .....	232,	150,	252,	264,	319,
	Cheese .....	67,	58,	62,	55,	58,
	Candles .....	97,	112,	135,	120,	75,
	Salt .....	142,	152,	209,	170,	116,
	Spirits .....	205,	150,	178,	145,	114,
	Soda .....	434,	411,	269,	487,	517,
		2,064,	1,847,	1,935,	2,493,	2,494,
Various Manufcts.	Books, Printed.....	198,	189,	203,	221,	215,
	Furniture .....	134,	107,	96,	103,	106,
	Leather Manufactures	1,044,	1,269,	945,	1,032,	898,
	Soap .....	120,	110,	116,	124,	92,
	Plate and Watches ....	224,	214,	204,	241,	235,
	Stationery.....	143,	127,	299,	373,	393,
		1,863,	2,016,	1,863,	2,094,	1,939,
Remainder of Enumerated Articles .....		3,798,	3,531,	1,890,	1,622,	1,546,
Unenumerated Articles .....		4,010,	3,588,	4,457,	4,389,	4,659,
TOTAL EXPORTS .....		62,014,	57,315,	60,143,	62,020,	63,003,

SHIPPING. — FOREIGN TRADE. — (United Kingdom.) — First Six Months  
(January—June), 1863-62-61-60.—*Vessels Entered and Cleared with Cargoes,  
including repeated Voyages, but excluding Government Transports.*

(First Six Months.)	1863.			1862.		1861.		1860.	
	Vessels.	Tonnage (000's omitted.)	Average Tonnage.	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)
<b>ENTERED:—</b>									
<i>Vessels belonging to—</i>	No.	Tons.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Russia .....	135	44,	326	149	47,	168	51,	136	42,
Sweden .....	458	73,	159	367	63,	437	80,	379	60,
Norway .....	1,416	293,	207	1,125	212,	1,066	200,	874	176,
Denmark .....	1,474	139,	94	1,053	103,	1,229	118,	1,341	127,
Prussia and Ger. Sts. ....	1,754	416,	237	1,459	366,	1,741	382,	1,527	318,
Holland and Belgium ....	843	117,	139	796	107,	809	107,	771	106,
France .....	1,417	118,	84	838	70,	1,002	79,	946	81,
Spain and Portugal .....	192	59,	307	184	55,	247	56,	188	50,
Italy & other Eupn. Sts.	225	68,	302	300	91,	397	112,	287	88,
United States .....	395	406,	1,027	561	480,	937	834,	692	689,
All other States .....	9	3,	333	8	3,	6	2,	10	3,
United Kingdm. & } Depds. ....	8,318 10,170	1,736, 3,034,	209 299	6,840 9,098	1,597 2,720,	8,075 9,087	2,021, 2,714,	7,151 8,526	1,740, 2,482,
<i>Totals Entered</i>	18,488	4,770,	302	15,938	4,317	17,162	4,735,	15,677	4,222,
<b>CLEARED:—</b>									
Russia ....	161	53,	329	170	55,	179	54,	142	46,
Sweden .....	429	73,	170	372	70,	477	87,	425	75,
Norway .....	875	163,	163	914	171,	943	169,	762	152,
Denmark .....	1,541	146,	93	1,273	124,	1,471	145,	1,464	143,
Prussia and Ger. Sts. ....	2,394	488,	204	2,194	437,	2,255	422,	1,924	378,
Holland and Belgium ....	901	139,	142	1,082	164,	971	136,	908	151,
France .....	2,256	217,	96	2,458	243,	2,702	259,	1,764	191,
Spain and Portugal .....	175	59,	339	187	59,	202	52,	160	45,
Italy & other Eupn. Sts.	302	96,	319	306	94,	519	148,	360	113,
United States .....	348	353,	1,015	518	447,	794	722,	711	675,
All other States .....	11	4,	363	17	8,	12	5,	9	3,
United Kingdm. & } Depds. ....	9,393 13,816	1,791, 3,827,	179 276	9,491 13,261	1,872, 3,612,	10,525 12,358	2,199, 3,238,	8,629 11,652	1,972, 3,147,
<i>Totals Cleared</i>	23,209	5,618,	242	22,752	5,484,	22,883	5,437,	20,281	5,119,



**GOLD AND SILVER BULLION AND SPECIE. — IMPORTED AND EXPORTED. — (United Kingdom.) — *Computed Real Value for the First Six Months (January—June), 1863-62-61.***

[000's omitted.]

(First Six Months.)	1863.		1862.		1861.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
<b>Imported from:—</b>	£	£	£	£	£	£
Australia .....	2,885,	—	3,295,	—	3,092,	—
So. Amca. and W. } Indies .....	2,163,	3,580,	917,	3,016,	617,	2,780,
United States and } Cal. ....	3,491,	527,	3,214,	45,	27,	26,
	8,539,	4,107,	7,426,	3,061,	3,736,	2,806,
France .....	179,	483,	83,	673,	1,697,	346,
Hanse Towns, Holl. } & Belg. ....	252,	895,	386,	1,459,	401,	378,
Prtgl., Spain, and } Gbrltr. ....	8,	43,	12,	66,	6,	94,
Mlta., Trky., and } Egypt .....	115,	3,	3,	6,	12,	3,
China .....	—	—	—	1,	—	—
West Coast of Africa	38,	2,	57,	3,	40,	1,
All other Countries....	605,	61,	126,	13,	82,	25,
<b>Totals Imported</b>	9,736,	5,594,	8,093,	5,282,	5,974,	3,653,
<b>Exported to:—</b>						
France .....	2,264,	550,	2,711,	394,	916,	556,
Hanse Towns, Holl. } & Belg. ....	988,	535,	122,	247,	9,	454,
Prtgl., Spain, and } Gbrltr. ....	1,438,	—	1,062,	7,	482,	3,
	4,690,	1,085,	3,895,	648,	1,407,	1,013,
Ind. and China (viâ } Egypt) .....	956,	4,487,	629,	4,364,	451,	4,594,
Danish West Indies....	—	—	65,	5,	11,	29,
United States .....	34,	—	29,	—	5,930,	18,
South Africa .....	118,	62,	—	—	75,	—
Mauritius.....	—	—	—	—	—	2,
Brazil .....	1,009,	42,	225,	10,	12,	83,
All other Countries....	1,846,	51,	2,458,	591,	394,	62,
<b>Totals Exported</b>	8,653,	5,727,	7,301,	5,618,	8,280,	5,801,
<b>Excess of Imports ....</b>	1,083,	—	792,	—	—	—
„ Exports ....	—	133,	—	336,	2,306	2,148,

**SHIPPING CASUALTIES** *Reported in Lloyd's "REGISTER OF LOSSES," during*  
(Casualties to Foreign Coasters, or to

*Note.*—This information, in a different form, was originally published, at intervals, in "Lloyd's

	Wrecked.				Sunk.			Abandoned.			Missing.
	Totally.	Part Cargo Saved.	Whole, or nearly so, of Cargo Saved.	Total.	Lost.	Raised.	Total.	Lost.	Reco- vered.	Total.	
<b>April—</b>											
1854.....	26	—	1	27	11	3	14	11	6	17	7
'55.....	37	10	6	53	17	—	17	8	5	13	3
'56.....	49	8	1	58	17	2	19	20	2	22	6
'57.....	43	14	1	58	25	4	29	9	6	15	4
'58.....	35	9	3	47	23	5	28	20	4	24	1
'59.....	51	17	2	70	34	8	42	16	10	26	1
Aver. of Six Yrs.	40·17	9·67	2·33	52·17	21·17	3·67	24·83	14·0	5·5	19·5	3·67
<b>May—</b>											
1854.....	34	1	1	36	21	1	22	19	3	22	2
'55.....	21	13	4	38	22	1	23	7	3	10	1
'56.....	22	6	3	31	20	3	23	14	1	15	4
'57.....	28	7	—	35	14	2	16	12	1	13	2
'58.....	32	13	2	47	23	7	30	8	4	12	5
'59.....	31	10	1	42	27	3	30	16	3	19	4
Aver. of Six Yrs.	28·0	8·33	1·83	38·17	21·17	2·83	24·0	12·67	2·5	15·17	3·0
<b>June—</b>											
1854.....	47	4	1	52	20	1	21	13	3	16	2
'55.....	25	11	3	39	15	3	18	6	2	8	6
'56.....	19	4	1	24	8	—	8	10	3	13	8
'57.....	30	8	4	42	16	—	16	7	3	10	6
'58.....	24	5	2	31	18	7	25	5	2	7	4
'59.....	35	6	2	43	21	4	25	6	3	9	2
Aver. of Six Yrs.	30·0	6·33	2·17	38·5	16·33	2·5	18·83	7·83	2·67	10·5	4·67
<b>June Qr.—</b>											
1854.....	107	5	3	115	52	5	57	43	12	55	11
'55.....	83	34	13	130	54	4	58	21	10	31	10
'56.....	90	18	5	113	45	5	50	44	6	50	18
'57.....	101	29	5	135	55	6	61	28	10	38	12
'58.....	91	27	7	125	64	19	83	33	10	43	10
'59.....	117	33	5	155	82	15	97	38	16	54	7
Aver. of Six Yrs.	98·17	24·33	6·33	128·83	58·67	9·0	67·67	34·5	10·67	45·17	11·33
<b>First Hf.-Yr.</b>											
1854.....	374	21	7	402	124	16	140	138	34	172	33
'55.....	281	62	22	365	118	13	131	73	29	102	21
'56.....	305	45	13	363	121	12	133	105	23	128	25
'57.....	306	77	22	405	147	15	162	98	27	125	32
'58.....	286	49	11	346	143	27	170	66	24	90	22
'59.....	278	65	15	358	164	23	187	79	27	106	25
Aver. of Six Yrs.	305·0	53·17	15·0	373·17	136·17	17·67	153·83	93·17	27·33	120·5	26·33

\* The majority of these may



the Months of APRIL, MAY, and JUNE, from 1854 to 1859 inclusive.  
Vessels Unidentified, are not included.)

List," but is now collated and tabulated by HENRY JEULA, Esq., Member of Lloyd's, F.S.S.

Stranded.				Condemned.			Touched the Ground, sustaining Trifling Damage.	Total.	
Subse- quent Fate not Reported.*	Got Off.	Got Off with Loss of part Cargo.	Total.	After Striking, &c.	From other Causes.	Total.			
29	61	5	95	2	—	2	—	162	April—
27	97	12	136	2	2	4	1	227	1854
32	74	7	113	3	4	7	—	225	'55
38	118	4	160	2	3	5	—	271	'56
46	105	8	159	4	7	11	—	270	'57
52	123	5	180	3	1	4	—	323	'58
37·33	96·33	6·83	140·5	2·67	2·83	5·5	·17	246·33	'59
									Aver. of Six Yrs.
32	63	3	98	3	2	5	2	187	May—
33	75	2	110	1	5	6	1	189	1854
30	61	9	100	4	3	7	—	180	'55
26	80	6	112	—	4	4	—	182	'56
33	92	10	135	3	4	7	—	236	'57
37	72	8	117	1	5	6	—	218	'58
31·83	73·83	6·33	112·0	2·0	3·83	5·83	·5	198·67	'59
									Aver. of Six Yrs.
26	62	4	92	1	3	4	2	189	June—
20	74	5	99	—	2	2	1	173	1854
14	73	5	92	2	5	7	—	152	'55
31	69	8	108	3	5	8	—	190	'56
28	77	3	108	1	2	3	—	178	'57
18	66	5	89	1	4	5	—	173	'58
22·83	70·17	5·0	98·0	1·33	3·5	4·83	·5	175·83	'59
									Aver. of Six Yrs.
87	186	12	285	6	5	11	4	538	June Qr.—
80	246	19	345	3	9	12	3	589	1854
76	208	21	305	9	12	21	—	557	'55
95	267	18	380	5	12	17	—	643	'56
107	274	21	402	8	13	21	—	684	'57
107	261	18	386	5	10	15	—	714	'58
92·0	240·33	18·17	350·5	6·0	10·17	16·17	1·17	620·83	'59
									Aver. of Six Yrs.
356	571	26	953	23	18	41	17	1,758	First Hf.-Yr.
227	575	31	833	11	17	28	5	1,485	1854
263	513	34	810	18	22	40	8	1,507	'55
322	718	40	1,080	10	24	34	7	1,845	'56
244	597	39	880	16	32	48	—	1,556	'57
224	610	33	867	17	37	54	—	1,597	'58
272·67	597·33	33·83	903·83	15·83	25·0	40·83	6·17	1624·67	'59
									Aver. of Six Yrs.

be considered as "Wrecks."

## REVENUE.—(UNITED KINGDOM.)—30TH JUNE, 1863-62-61-60.

*Net Produce in YEARS and QUARTERS ended 30TH JUNE, 1863-62-61-60.*

[000's omitted.]

QUARTERS, ended 30th June.	1863.	1862.	1863.		Corresponding Quarters.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	5,857,	5,791,	—	66,	5,820,	5,733,
Excise .....	4,405,	4,886,	481,	—	5,171,	5,114,
Stamps .....	2,394,	2,253,	—	141,	2,186,	2,068,
Taxes .....	1,390,	1,357,	—	33,	1,363,	1,354,
Post Office .....	950,	850,	—	100,	825,	825,
Property Tax .....	14,995,	15,137,	481,	340,	15,365,	15,094,
	2,918,	2,772,	—	146,	2,588,	1,089,
Crown Lands .....	17,914,	17,909,	481,	486,	17,953,	16,183,
	68,	68,	—	—	67,	66,
Miscellaneous .....	508,	433,	—	75,	378,	570,
Totals .....	18,490,	18,410,	481,	561,	18,398,	16,819,
			NET INCR. £80,300			

YEARS, ended 30th June.	1863.	1862.	1863.		Corresponding Years.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	24,100,	23,644,	—	456,	23,393,	24,085,
Excise .....	16,674,	18,047,	1,373,	—	19,492,	20,530,
Stamps.....	9,135,	8,658,	—	477,	8,466,	8,151,
Taxes .....	3,183,	3,154,	—	29,	3,136,	3,237,
Post Office .....	3,750,	3,535,	—	215,	3,400,	3,350,
Property Tax .....	56,842,	57,038,	1,373,	1,177,	57,887,	59,353,
	10,713,	10,549,	—	164,	12,423,	9,903,
Crown Lands .....	67,555,	67,587,	1,373,	1,341,	70,310,	69,256,
	301,	296,	—	5,	292,	286,
Miscellaneous .....	2,828,	1,803,	—	1,025,	1,260,	1,874,
Totals .....	70,684,	69,686,	1,373,	2,371,	71,862,	71,416,
			NET INCR. £998,072			



## REVENUE.—UNITED KINGDOM.—QUARTER ENDED 30TH JUNE, 1863.

*An Account showing the REVENUE and other RECEIPTS of the QUARTER ended 30th June, 1863; the APPLICATION of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.*

## Received:—

Surplus Balance beyond the Charge of the <i>Consolidated Fund</i> for the Quarter ended 31st March, 1863, viz.:—	£
Great Britain .....	£198,290
Ireland .....	389,282
	<hr/> 587,572
Income received in the Quarter ended 30th June, 1863, as shown on preceding page .....	18,490,204
Amount raised per Act 25 and 26 Victoria, cap. 78, on account of Fortifications, &c. ....	170,000
Amount received in the Quarter ended 30th June, 1863, in repayment of Advances for Public Works, &c. ....	327,034
	<hr/> £19,574,810
Balance, being the Deficiency on 30th June, 1863, upon the charge of the Consolidated Fund in Great Britain, to meet the Dividends and other charges payable in the Quarter to 30th September, 1863, and for which Exchequer Bills (Deficiency) will be issued in that Quarter .....	1,076,065
	<hr/> £20,650,875

## Paid:—

Amount applied out of the Income to <i>Supply Services</i> in the Quarter ended 30th June, 1863 .....	£
	10,999,837
Charge of the <i>Consolidated Fund</i> for the Quarter ended 30th June, 1863, viz.:—	
Interest of the Permanent Debt .....	£6,313,180
Terminable Debt .....	347,497
Principal of Exchequer Bills .....	1,029,300
Interest of „ .....	75,775
„ Deficiency Bills .....	—
The Civil List .....	102,215
Other Charges on Consolidated Fund .....	523,907
Advances for Public Works, &c. ....	225,058
Sinking Fund .....	62,888
	<hr/> 8,679,820
<i>Surplus Balance</i> in Ireland beyond the Charge of the Consolidated Fund in Ireland for the Quarter ended 30th June, 1863 .....	971,218
	<hr/> £20,650,875

CORN.—*Gazette Average Prices (ENGLAND AND WALES) Second Quarter of 1863.*

[This Table is communicated by H. F. JADIS, Esq., Comptroller of Corn Returns.]

Weeks ended on a Saturday 1863.		Weekly Average. (Per Impl. Quarter)					
		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
April	4 .....	45 9	36 6	21 5	30 4	36 1	35 11
"	11 .....	45 6	35 8	21 5	31 9	35 11	35 2
"	18 .....	45 6	35 4	21 6	30 5	36 6	36 2
"	25 .....	45 8	35 3	21 11	30 6	36 11	35 3
Average for April ....		45 7	35 8	21 6	30 9	36 4	35 7
May	2 .....	45 9	34 6	21 2	29 8	37 3	35 6
"	9 .....	46 2	34 4	22 1	30 11	37 6	34 —
"	16 .....	46 9	34 5	21 11	33 7	38 3	35 8
"	23 .....	46 8	33 9	22 7	34 6	38 6	36 5
"	30 .....	46 5	33 8	22 8	40 2	38 11	35 9
Average for May ....		46 4	34 1	22 1	33 9	38 1	35 5
June	6 .....	46 10	31 11	22 10	32 5	39 10	36 8
"	13 .....	46 11	32 4	22 10	34 10	39 8	36 11
"	20 .....	46 9	30 7	23 —	32 3	40 4	37 10
"	27 .....	46 5	31 2	22 10	35 9	39 8	36 2
Average for June .....		46 8	31 6	22 10	33 9	39 10	36 10
Average for the Quarter ..		46 2	33 9	22 2	32 10	38 1	35 11

## RAILWAYS.—PRICES, April—June;—and TRAFFIC, Jan.—June, 1863.

Total Capital Ex- pended Mlns.	Railway.	For the (£100). Price on			Miles Open.		Total Traffic first 26 Weeks. (unit 000's omitted.)		Traffic pr. Mile pr. Wk 26 Weeks.		Dividends per Cent. for Half Years.		
		1st June.	3rd May.	1st Apr.	'63.	'62.	'63.	'62.	'63.	'62.	31 Dec. '62.	30 Jun. '62.	31 Dec. '61.
£					No.	No.	£	£	£	£	s. d.	s. d.	s. d.
47,9	Lond. & N. Westn.	103	93 <sup>7</sup> / <sub>8</sub>	97 <sup>7</sup> / <sub>8</sub>	1,199	1,135	2,286,	2,156,	73	58	55 —	37 6	47 6
41,6	Great Western ....	68 <sup>1</sup> / <sub>8</sub>	67 <sup>3</sup> / <sub>8</sub>	66 <sup>5</sup> / <sub>8</sub>	992	964	1,438,	1,387,	56	55	30 —	5 —	30 —
14,9	" Northern ....	127 <sup>1</sup> / <sub>2</sub>	125	121 <sup>1</sup> / <sub>2</sub>	330	330	678,	646,	79	75	85 —	45 0	77 6
20,2	" Eastern ....	53 <sup>5</sup> / <sub>8</sub>	53 <sup>1</sup> / <sub>4</sub>	49 <sup>7</sup> / <sub>8</sub>	663	644	720,	688,	42	41	25 —	20 —	30 —
10,7	Brighton .....	116 <sup>1</sup> / <sub>2</sub>	116	114 <sup>3</sup> / <sub>4</sub>	250	241	448,	428,	68	68	70 —	50 —	70 —
14,7	South-Eastern ....	92 <sup>3</sup> / <sub>4</sub>	92 <sup>3</sup> / <sub>4</sub>	92 <sup>1</sup> / <sub>4</sub>	306	306	531,	523,	67	66	60 —	42 6	50 —
14,2	" Western ....	105 <sup>1</sup> / <sub>2</sub>	103 <sup>1</sup> / <sub>4</sub>	101 <sup>1</sup> / <sub>4</sub>	447	400	539,	488,	46	47	60 —	40 —	55 —
164,2		95 <sup>1</sup> / <sub>4</sub>	93	92 <sup>1</sup> / <sub>8</sub>	4,187	4,020	6,640,	6,316,	61	60	55 —	34 3	51 —
22,3	Midland .....	129 <sup>3</sup> / <sub>8</sub>	125 <sup>1</sup> / <sub>2</sub>	123 <sup>1</sup> / <sub>2</sub>	641	614	1,014,	960,	61	40	65 —	55 —	70 —
19,6	Lancsh. and York.	111 <sup>1</sup> / <sub>2</sub>	108 <sup>1</sup> / <sub>2</sub>	108 <sup>3</sup> / <sub>4</sub>	395	395	857,	811,	83	79	40 —	37 6	50 —
12,3	Sheffield and Man.	45 <sup>1</sup> / <sub>2</sub>	44	45 <sup>1</sup> / <sub>2</sub>	239	239	380,	350,	61	56	—	—	12 6
26,3	North-Eastern ....	103 <sup>1</sup> / <sub>4</sub>	100	98 <sup>3</sup> / <sub>4</sub>	894	878	1,043,	982,	44	43	50 —	42 6	50 —
80,5		97 <sup>1</sup> / <sub>4</sub>	94 <sup>1</sup> / <sub>2</sub>	94 <sup>1</sup> / <sub>8</sub>	2,169	2,126	3,294,	3,103,	58	56	51 8	45 —	45 6
9,1	Caledonian .....	118	113 <sup>3</sup> / <sub>4</sub>	113	230	230	418.	392,	70	65	60 —	50 —	55 —
5,3	Gt. S. & Wn. Irld.	101 <sup>1</sup> / <sub>2</sub>	102 <sup>1</sup> / <sub>4</sub>	103	329	329	204,	206,	24	24	50 —	50 —	50 —
259,1	Gen. aver. ....	98 <sup>1</sup> / <sub>8</sub>	95 <sup>3</sup> / <sub>4</sub>	95 <sup>1</sup> / <sub>8</sub>	6,915	6,705	10,556,	10,017,	59	58	53 4	36 6	49 9



## BANK OF ENGLAND.—WEEKLY RETURN.

*Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the SECOND QUARTER (April—June) of 1863.*

[0,000's omitted.]

1					6	
2					7	
ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
Liabilities.	DATES.	Assets.			Notes in	Minimum Rates
Notes Issued.	(Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.	Hands of Public. (Col. 1 minus col. 16.)	of Discount at Bank of England.
Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	1863. Per ann.
28,94	April 1 ....	11,02	3,63	14,29	20,37	23 Apl. 3½ p. ct. 30 „ 3 „
28,70	„ 8 ....	11,02	3,63	14,12	20,63	
29,05	„ 15 ....	11,02	3,63	14,40	20,71	
29,19	„ 22 ....	11,02	3,63	14,54	20,80	
29,14	„ 29 ....	11,02	3,63	14,49	20,87	
28,94	May 6 ....	11,02	3,63	14,29	19,77	16 May 3½ „ 21 „ 4 „
28,38	„ 13 ....	11,02	3,63	13,73	20,64	
28,34	„ 20 ....	11,02	3,63	13,69	20,68	
28,26	„ 27 ....	11,02	3,63	13,61	20,38	
28,21	June 3 ...	11,02	3,63	13,56	20,76	
28,33	„ 10 ....	11,02	3,63	13,68	20,51	
28,61	„ 17 ....	11,02	3,63	13,96	20,13	
28,78	„ 24 ....	11,02	3,63	14,13	19,99	

## BANKING DEPARTMENT.

8		9		10		11		12		13		14		15		16		17		18	
Liabilities.										Assets.											
Capital and Rest.		Deposits.		Seven Day and other Bills.	DATES.  (Wdnsdys.)	Securities.		Reserve.		Totals of Liabili- ties and Assets.											
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.												
Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £											
14,55	3,67	10,11	13,17	,60	April 1	11,37	21,31	8,57	,85	42,10											
14,55	3,09	6,71	14,83	,58	„ 8	11,13	19,72	8,07	,84	39,76											
14,55	3,09	5,77	15,01	,62	„ 15	11,13	18,75	8,34	,83	39,05											
14,55	3,10	6,32	14,74	,61	„ 22	12,05	18,03	8,39	,85	39,32											
14,55	3,10	7,18	13,61	,58	„ 29	12,05	17,85	8,27	,86	39,03											
14,55	3,12	7,24	13,12	,60	May 6	12,15	17,47	8,17	,85	38,64											
14,55	3,14	6,74	13,73	,62	„ 13	11,15	18,95	7,74	,92	38,77											
14,55	3,15	7,61	13,98	,59	„ 20	11,15	20,24	7,66	,83	39,88											
14,55	3,16	8,00	13,84	,54	„ 27	11,15	20,16	7,88	,89	40,09											
14,55	3,13	8,78	13,90	,54	June 3	11,15	21,14	7,45	,86	40,90											
14,55	3,15	9,78	13,78	,57	„ 10	11,25	21,89	7,82	,87	41,83											
14,55	3,16	9,88	13,90	,52	„ 17	11,25	21,40	8,48	,89	42,02											
14,55	3,17	10,28	13,81	,54	„ 24	11,25	21,41	8,79	,90	42,35											

## CIRCULATION.—COUNTRY BANKS.

*Average amount of Promissory Notes in Circulation in ENGLAND and WALES, on Saturday, in each Week during the SECOND QUARTER (April—June) of 1863; and in SCOTLAND and IRELAND, at the Four Dates, as under.*

ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES.	Private Banks. (Fixed Issues, 4'30.)	Joint Stock Banks. (Fixed Issues, 3'30.)	TOTAL. (Fixed Issues, 7'60.)	Four Weeks, ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2'75.)	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 6'35.)
1863.	Mlns. £	Mlns. £	Mlns. £	1863.	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £	Mlns. £
April 4	3,26	3,05	6,31	April 4	1,47	2,41	3,88	2,70	2,68	5,38
„ 11	3,33	3,10	6,43							
„ 18	3,33	3,07	6,40							
„ 25	3,31	3,02	6,33							
May 2	3,28	2,98	6,26	May 2	1,51	2,44	3,95	2,86	2,62	5,48
„ 9	3,28	3,06	6,34							
„ 16	3,24	2,99	6,23							
„ 23	3,15	2,93	6,08							
„ 30	3,07	2,83	5,90	„ 30	1,75	2,72	4,47	2,87	2,50	5,37
June 6	3,04	2,79	5,83							
„ 13	2,99	2,77	5,76							
„ 20	3,01	2,80	5,81							
„ 27	3,05	2,82	6,87	June 27	1,72	2,66	4,38	2,68	2,40	5,08

**FOREIGN EXCHANGES.**—*Quotations as under, LONDON on Paris, Hamburg & Calcutta;—and New York, Calcutta, Hong Kong & Sydney, on LONDON—with collateral cols.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14
DATES.	Paris.				Hamburg.			New York.	Calcutta.		Hong Kong.	Syd- ney.	Stand- ard Silver in bars in Lon- don.  pr. oz.
	London on Paris  3 m. d.	Bullion as arbitrated.		Prem. ordis. on Gold per mille.	London on Hambg.  3 m. d.	Bullion as arbitrated.			India House.	At Calcutta on London.			
		Agnst. Engd.	For Engd.			Agnst. Engd.	For Engd.						
1863.		pr. ct.	pr. ct.			pr. ct.	pr. ct.	pr. ct.	d.	d.	d.	pr. ct.	d.
April 4 ..	25·50	—	0·2	½ pm	13·8	—	0·5	170	23 <sup>7</sup> / <sub>8</sub>	24 <sup>7</sup> / <sub>8</sub>	57	1 p.	61½
„ 18 ..	52½	—	0·2	„	8	—	0·6	„	23½	„ ½	„	„	62½
May 2 ..	47½	—	0·2	„	7¾	—	0·6	166	„	„ ½	„	„	61⅛
„ 16 ..	47½	—	0·1	„	7¾	—	0·6	„ ½	„	„ ⅜	„	„	61⅛
June 6 ..	50	—	0·3	„	8	—	0·6	165	„ ¾	„ ¾	„	„	61⅝
„ 20 ..	50	—	0·1	1 pm	8¼	—	0·1	160	„	„ ½	„	„	61½



JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER, 1863.

*The EXPENDITURE of the UNITED KINGDOM for COLONIAL PURPOSES. By FREDERICK PURDY, Principal of the Statistical Department of the Poor Law Board, and one of the Honorary Secretaries of the Statistical Society.*

[Read before the Statistical Society, 21st April, 1863.]

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I.—*Sources of Information.*

THE charges thrown by the British colonies and dependencies upon the taxation of the mother country is a topic which has been much and recently discussed, both in Parliament and in the public press. A Select Committee of the House of Commons, over which Mr. Arthur Miles presided as Chairman, took evidence and reported in 1861 upon “Colonial Military Expenditure.” Since the publication of that Report, the Colonial Office has issued several important papers relative to the expense for military and civil services, in which the Home Government is at present involved by the maintenance of its colonial empire. The statistics of the following paper are principally derived from these two sources. I have here, however, to acknowledge the great facility afforded to me in its preparation by the courtesy of Mr. T. F. Elliott, the Assistant Under Secretary of State for the Colonies, who kindly placed at my disposal an early proof of the parliamentary return, from which the first and principal table of the Appendix was compiled.

The end proposed in this communication is a purely statistical one—whether any, or what amount of taxation should be paid by the United Kingdom for colonial purposes, has not been discussed—to exhibit compendiously, and according to the best information obtainable, the prominent facts of the inquiry, has been alone attempted.

## II.—*Statistics of each Colonial Group.*

The Colonies, with the other dependencies of the British Crown, are arranged in seven groups, chiefly according to their geographical affinities, in the following manner:—

1. The North American Group.
2. The West Indian Group.
3. The West African Group.
4. The South African Group.
5. The Eastern Group.
6. The Australian Group; and
7. The Mixed Group, containing places not in any of the foregoing divisions.

The statistics of each group, in this division of the paper, are briefly discussed under five heads:— (1) *Area and Population*. (2) *Trade*. (3) *Colonial Revenue and Debt*. (4) *Imperial Expenditure*; under which section the charges defrayed in 1860 by the mother country, for the benefit of the colonies, are set out; and (5) *Progress*; which is exhibited by collating the population and trade, according to the latest returns, with the corresponding information for the year 1838.

### 1. *North American Group.*

This group contains seven colonies, viz.:—

- |                          |                          |
|--------------------------|--------------------------|
| 1. Canada,               | 5. Newfoundland,         |
| 2. Nova Scotia,          | 6. British Columbia, and |
| 3. New Brunswick,        | 7. Vancouver Island.     |
| 4. Prince Edward Island, |                          |

*Area and Population.*—The aggregate territory of these colonies covers 512,169 square miles; the population, according to the latest returns, was 3,294,561, of whom 34,807 were people of colour.

*Trade.*—The value of the imports and exports in 1860, and the extent of the trade with the mother country, are shown by the next figures:—



Imports from—	£	£
The United Kingdom .....	4,882,000	
Other countries .....	7,038,000	
		11,920,000
Exports to—		
The United Kingdom .....	3,618,000	
Other countries .....	7,174,000	
		11,792,000
Total .....	—	23,712,000

One-third of the commerce of this group is carried on with England; the greater part of the remainder goes to the United States.

*Colonial Revenue and Debt.*—The whole amount raised for the year was 2,064,313*l.*, which is equal to a poll tax of 12*s.* 7*d.* The public debt at the end of the same year was 14,232,502*l.*

*Imperial Expenditure.*—The charges defrayed with respect to the colonies, by the British Parliament, are for military and civil services.

The military expenses are returned under three heads; the civil disbursements, being very small, are stated here in one sum. But some of the particulars will be found in Table II in the Appendix. Further details for a subsequent year will be found in Table III.

Military Services—	£	£
Troops .....	368,770	
Transports .....	20,359	
Fortifications and barracks .....	25,535	
		414,664
Civil Services—		
Various heads .....	—	15,320
Total .....	—	429,984

*Progress.*—The material advancement may be estimated by the following comparisons:—In 1838, there were *five* colonies in this group. British Columbia and Vancouver Island have since been added. The population was, in the year stated, 1,282,000; it is now 3,294,561; being an increase of 157 per cent.; the aggregate value of the imports and exports was then 9,185,000*l.*; it is now 23,712,000*l.*, equal to an increase of 158 per cent.

2. West Indian Group.

This group contains seven colonies, viz.:—

8. Jamaica,	12. Trinidad,
9. Honduras,	13. Windward Islands, and
10. Turk's Islands,	14. Leeward Islands.
11. British Guiana,	

*Area and Population.*—Excluding Turk's Islands, the area of

which appears not to be known, this group measures 99,090 square miles. The population at present is 1,075,395 persons, the most of whom are coloured. The exact numbers in those colonies where the distinction of race has been observed in the enumeration of the inhabitants are 54,650 white, and 967,294 coloured.

*Trade.*—In 1860, the value of the goods imported and exported was as given below :—

<i>Imports from—</i>	£	£
The United Kingdom .....	2,627,000	
Other countries .....	2,710,000	
	<hr/>	5,337,000
<i>Exports to—</i>		
The United Kingdom .....	4,653,000	
Other countries .....	1,178,000	
	<hr/>	5,831,000
Total .....	—	<hr/> 11,168,000 <hr/>

The United Kingdom has the largest share of this commerce, as it takes more than *seven millions* of the aggregate value.

*Colonial Revenue and Debt.*—The sum for 1860 was 919,697*l.*, or 17*s.* 1*d.* per head on the population. The debt at the end of the year was 1,495,967*l.*

*Imperial Expenditure* is shown by the following figures :—

<i>Military Services—</i>	£	£
Troops .....	325,798	
Transports .....	18,477	
Fortifications and barracks .....	18,424	
	<hr/>	362,699
<i>Civil Services—</i>		
Various heads.....	—	57,528
Total .....	—	<hr/> 420,227 <hr/>

*Progress.*—There has been a considerable increase in the population, but a falling off in the value of the imports and exports since 1838. Then the population consisted of 675,000 persons; it is now 37 per cent. above that number. The value of the trade was then 12,700,000*l.*, or 12 per cent. greater than at the present time.

### 3. *West African Group.*

This is a very small group; it contains three dependencies :—

- |                   |  |                 |
|-------------------|--|-----------------|
| 15. Sierra Leone, |  | 16. Gambia, and |
|                   |  | 17. Gold Coast. |

*Area and Population.*—The total surface is 6,488 square miles; the population 199,909 persons, of whom 392 only are whites.



*Trade.*—The figures for 1860 express the annual value thus:—

<i>Imports from—</i>	£	£
The United Kingdom .....	233,000	
Other countries .....	125,000	
	<hr/>	358,000
<i>Exports to—</i>		
The United Kingdom .....	205,000	
Other countries .....	319,000	
	<hr/>	524,000
Total .....	—	<hr/> 882,000

*Colonial Revenue and Debt.*—The sum raised in 1860 was 49,581*l.*, or 4*s.* 11*d.* per head on the population; the debt was then 2,304*l.*

*Imperial Expenditure.*—The circumstances of these dependencies are peculiar. The charges borne by Parliament are much in excess of the sum raised locally as revenue:—

<i>Military Services—</i>	£	£
Troops .....	68,951	
Transports .....	3,643	
Fortifications and barracks .....	2,399	
	<hr/>	74,993
<i>Civil Services—</i>		
Various heads .....	—	10,230
Total .....	—	<hr/> 85,223

*Progress.*—The population since 1838 has increased by 5,493 persons; and the value of the trade, comparing 1860 with 1838, by 269,000*l.*, or 44 per cent.

#### 4. *South African Group.*

Two colonies only are comprised in this group, viz.:—

18. Cape of Good Hope, and, 19. Natal.

*Area and Population.*—The extent of the two colonies is 119,268 square miles; the population, at the latest return, was 388,906. Of that number 114,106 were white, and 274,800 coloured.

*Trade.*—The value of the imports and exports in 1860 is represented by the following figures:—

<i>Imports from—</i>	£	£
The United Kingdom .....	2,116,000	
Other countries .....	705,000	
	<hr/>	2,821,000
<i>Exports to—</i>		
The United Kingdom .....	1,392,000	
Other countries .....	828,000	
	<hr/>	2,220,000
Total .....	—	<hr/> 5,041,000

*Colonial Revenue and Debt.*—The amount raised was 612,078*l.*, or 31*s.* 6*d.* per head on the population; the debt in the same year, that is to say 1860, was 418,400*l.*

*Imperial Expenditure.*—The amount for each branch is thus stated:—

<i>Military Services—</i>	£	£
Troops .....	387,873	
Transports .....	57,598	
Fortifications and barracks .....	11,187	
	<hr/>	456,658
<i>Civil Services—</i>		
Various heads.....	—	41,000
Total .....	—	<hr/> 497,658 <hr/>

*Progress.*—In 1838 we had but one colony in South Africa—Natal has since been settled. In the year named the population amounted to 147,341; it is now 388,906, which is equivalent to an increase of 164 per cent.

The combined value of the imports and exports was then 1,424,000*l.*; it is now 5,041,000*l.*, which represents an increase in that interval of 254 per cent.

### 5. *Eastern Group.*

Four dependencies are placed in this group, viz.:—

20. Ceylon,		22. Hong Kong, and
21. Mauritius,		23. Labuan.

*Area and Population.*—The total extent is 25,485 square miles; the population is 2,351,300 persons, of whom only 11,186 are whites.

*Trade.*—The value of that which is represented by the imports and exports is shown as under:—

<i>Imports from—</i>	£	£
The United Kingdom .....	1,622,000	
Other countries .....	4,736,000	
	<hr/>	6,358,000
<i>Exports to</i>		
The United Kingdom .....	3,085,000	
Other countries .....	1,738,000	
	<hr/>	4,823,000
Total .....	—	<hr/> 11,181,000 <hr/>

This is exclusive of the Hong Kong trade, which, according to the return, “cannot be ascertained;” the statistics of import trade being published with those of the other ports in China with which we traffic.\*

\* As regards Hong Kong, the imports are returned in connection with the China trade. The value of the exports from the United Kingdom in 1860 was 2,536,000*l.*



*Colonial Revenue and Debt.*—In the year of which we are treating, 1,403,206*l.* revenue was raised ; this sum is equal to 11*s.* 11*d.* per head on population. There was no debt.

*Imperial Expenditure.*—In this year, the military expenses charged in the return to Hong Kong appear to be exceptionally high, in consequence of the expeditions to China and Japan.

The figures below include a sum of 173,364*l.* ascribed to this dependency. Distinguishing the military from the civil services, we obtain this statement, viz.:—

<i>Military Services—</i>	£	£
Troops .....	365,459	
Transports .....	44,634	
Fortifications and barracks .....	26,526	
	<hr/>	436,619
<i>Civil Services—</i>		
Various heads.....	—	7,649
		<hr/>
Total .....	—	444,268
		<hr/>

*Progress.*—Since 1838 two places have been added to our Eastern possessions; namely, Hong Kong and Labuan. In 1838, the colonial population was 1,382,000; it is now greater by 969,000, or by 70 per cent. The value of the trade in the earlier year was 2,884,000*l.*; it is now 11,184,000*l.*, whence it is seen that the increase is 288 per cent., exclusive of the Hong Kong trade.

6. *Australian Group.*

Seven colonies are now embraced in this most important and prosperous group, viz.:—

24. New South Wales,	28. Western Australia,
25. Victoria,	29. Tasmania, and
26. Queensland,	30. New Zealand.
27. South Australia,	

*Area and Population.*—The extent is enormous, being upwards of 2,582,000 square miles; the population 1,358,381 persons, of whom 113,115, or less than *one-tenth*, fall under the class termed “coloured.”

*Trade.*—The commerce of our Australian colonies greatly exceeds that of any other group. The value of the imports and exports in 1860 is expressed by the following figures:—

<i>Imports from—</i>	£	£
The United Kingdom .....	16,748,000	
Other countries .....	10,970,000	
	<hr/>	27,718,000
<i>Exports to—</i>		
The United Kingdom .....	13,039,000	
Other countries .....	9,192,000	
	<hr/>	22,231,000
		<hr/>
Total.....	—	49,949,000
		<hr/>

*Colonial Revenue and Debt.*—The revenue raised in these colonies

is very great; it amounted this year to 5,759,312*l.*, or 84*s.* 9*d.* per head on the population. The debt is also large, namely 10,678,584*l.*

*Imperial Expenditure.*—In relation to the trade and revenue of these colonies, the charge to the mother country is small, when compared with the corresponding circumstances of several of the other groups. This will be readily perceived by the aid of the next figures:—

<i>Military Services—</i>	£	£
Troops .....	225,314	
Transports .....	26,091	
Fortifications and barracks .....	938	
	<hr/>	252,343
<i>Civil Services—</i>		
Various heads.....	—	18,685
		<hr/>
Total .....	—	271,028
		<hr/>

*Progress.*—There are now *seven* colonies in this group; in 1838 there were but *three*. Victoria, South Australia, New Zealand, and Queensland are the new possessions of the Crown. In 1838 the population amounted to 145,680 persons only; it is now 1,358,381. Hence, in twenty-two years it has increased 832 per cent. The value of the trade in the earlier year was 3,720,000*l.*; it is now very nearly *fifty millions* sterling. This is inclusive of the trade in gold. The value of the imports and exports of this group has increased in twenty-two years by the extraordinary ratio of 1,242 per cent.

### 7. *Mixed Group.*

This group is made up of *eight* dependencies, not conveniently referrible to any of the other sections. *One* is in the German Ocean, *three* are in the Mediterranean, and the remainder in the North and South Atlantic. These places are respectively—

31. Heligoland,	35. Bermuda,
32. Gibraltar,	36. Bahamas,
33. Malta,	37. St. Helena, and
34. Ionian Isles,	38. Falklands.

*Area and Population.*—The combined territory contains 11,750 square miles; the population is 441,270 persons, of whom 36,119 are coloured.

*Trade.*—Excluding Gibraltar, for which place there is no return under this head, the value of the commerce, in 1860, was in respect of—

<i>Imports from—</i>	£	£
The United Kingdom .....	620,000	
Other countries .....	4,299,000	
	<hr/>	4,919,000
<i>Exports to—</i>		
The United Kingdom .....	2,066,000	
Other countries .....	1,138,000	
	<hr/>	3,204,000
		<hr/>
Total .....	—	8,223,000
		<hr/>



*Colonial Revenue and Debt.*—The sum raised in 1860 was 429,198*l.*, or 19*s.* 6*d.* per head on the population. The debt was then 333,462*l.*

*Imperial Expenditure.*—The expenses of this group, from the military character of the Mediterranean stations, are very great. The Ionian Islands alone entail a charge upon this country of 280,000*l.* a-year. For the eight dependencies the account stands thus:—

<i>Military Services—</i>	£	£
Troops .....	1,190,560	
Transports .....	85,933	
Fortifications and barracks .....	67,774	
	<hr/>	1,344,267
<i>Civil Services—</i>		
Various heads.....	—	16,810
		<hr/>
Total .....	—	<u>1,361,077</u>

*Progress.*—Since 1838 the Falklands have become a dependency of the Crown. The population of the entire group has increased about 10 per cent.

#### *Summary of the Seven Groups.*

*Area and Population.*—The *thirty-eight* colonies and dependencies of the British Crown have a collective territory of 3,356,320 square miles, supporting, according to the latest returns, a population of 9,109,722 persons, of whom 5,084,061 are “white,” and 3,965,766 “coloured;” the proportion being as 5 to 4, very nearly. In two or three of the smaller colonies the population has been returned without discriminating the races, which accounts for the discrepancies in the totals just mentioned. The colonial population, according to these figures, is equal, very nearly, to *one-third* of the population of the United Kingdom.

*Trade.*—Relying upon the value of the imports and exports, as the sufficient exponent of colonial traffic, we arrive at the following results:—

<i>Imports from—</i>	£	£
The United Kingdom .....	28,849,000	
Other countries.....	30,583,000	
	<hr/>	59,432,000
<i>Exports to—</i>		
The United Kingdom .....	28,059,000	
Other countries.....	21,567,000	
	<hr/>	49,626,000
Total .....	—	<u>109,058,000</u>

*Colonial Revenue and Debt.*—The whole sum raised within the colonies as revenue, in 1860, by taxation, by sale of lands, and by licences, was 11,237,385*l.*, or 24*s.* 8*d.* per head on the population. On the 31st December of the same year, the total of colonial debts

was 27,161,219*l.* The national debt is 818,000,000*l.*\* The aggregate of the colonial debts was, therefore, nearly *one-thirtieth* of the national debt.

*Imperial Expenditure.*—The total burthen cast by the colonies on the taxation of this country, is exhibited by the annexed statement:—

<i>Military Services—</i>	£	£
Troops .....	2,932,725	
Transports .....	256,735	
Fortifications and barracks .....	152,783	
	<hr/>	3,342,243
<i>Civil Services—</i>		
Various heads .....	—	167,222
		<hr/>
Total .....	—	3,509,465
		<hr/>

*Progress.*—In 1838 we had twenty-five colonies and dependencies, peopled by 4,090,000 persons; at the present time we possess thirty-eight colonies and dependencies, with a population more than *twice* as numerous as it was twenty years ago. Between 1838 and 1860 the trade has risen from 33,000,000*l.* to 109,058,000*l.*, or in *more than a threefold* proportion.

### III.—*Cost of Military, Naval, and Civil Services.*

I believe it is unknown to what extent our colonial possessions and dependencies swell the naval estimates. It is perhaps impossible to say how much of the British navy exists solely for the defence of the colonies. Though it is admittedly very great, the Select Committee on “Colonial Military Expenditure” conclude their report with the expression of opinion, that it is better “to trust “mainly to naval supremacy for securing against foreign aggression “the distant dependencies of the empire.”

The naval estimates, however, contain a sum of 100,411*l.*, as voted last year by Parliament, for “Her Majesty’s establishments abroad.”† That amount is thus divided:—

	£	£
<i>Nine</i> Naval yards .....	21,714	
Wages .....	52,950	
	<hr/>	74,664
<i>Eight</i> Victualling establishments .....	4,134	
Wages.....	9,380	
	<hr/>	13,514
<i>Five</i> Medical establishments .....	7,762	
Wages .....	4,471	
	<hr/>	12,233
		<hr/>
Total .....	—	100,411
		<hr/>

\* In 1861, “Miscellaneous Statistics,” part 4, presented to Parliament in 1862.

† Navy Estimates, 1863-64.



The whole expenditure borne by the taxation of the mother country, in respect of her colonies and other dependencies, comes under three heads, namely :—

	£
Military services .....	3,342,243
Naval „ .....	100,411
Civil „ .....	167,222
Total .....	<u>3,609,876</u>

Twenty-four years previously, that is to say in 1836, the charge for similar objects was 2,646,410*l.*, namely, for—

	£
Military services .....	2,030,059
Naval „ .....	39,364
Civil „ .....	486,154
	<u>2,555,577</u>
St. Helena (not classed) .....	90,833
Total .....	<u>2,646,410*</u>

The dependencies of the Crown fall under two very distinct categories. 1. Colonies proper, and 2. Dependencies chiefly maintained for imperial purposes.

The Select Committee on “Colonial Military Expenditure” divide a sum of 3,225,081*l.*,† set down as “Imperial Military Expenditure,” between each class, in the following manner :—

	£
For (1) Colonies proper .....	1,715,246
„ (2) Dependencies .....	1,509,835
Total .....	<u>3,225,081</u>

It is evident this is a political distinction to be fully borne in mind whenever the colonial expenditure to be met by the home revenue is under discussion, lest dissimilar questions be confounded.

But of the colonies proper, there is another division to be effected. We have to separate the self-governing communities from the other colonies. According to Mr. Chichester Fortescue, the Under Secretary of State for the Colonies,‡ the following dependencies, fourteen in number, are self-governing colonies; the cost to the imperial revenue for their military defences, in 1860, is given opposite to each :—

\* House of Commons' Paper, No. 632, “Colonial Expenditure,” Sess. 1840.

† Report, p. 4.

‡ “Hansard,” vol. clxv, 1862, p. 1052.

	£
Canada .....	206,264
New Brunswick, Nova Scotia .....	149,495
Prince Edward Island .....	Nil.
Newfoundland .....	20,807
Vancouver Island ... ..	38,098
New South Wales .....	43,039
Queensland .....	Nil.
Victoria .....	36,557
South Australia .....	6,836
New Zealand .....	104,852
Tasmania .....	35,113
Cape of Good Hope and Natal .....	456,658
Total .....	<u>1,097,719</u>

The total sums respectively expended for military purposes in each colony, during the year 1858, are stated in Table V (Appendix), in which the proportion borne by the colonies is distinguished from that paid by the imperial exchequer.

The subsequent statement of the sums paid by the colonies for their defence is taken from the report of Mr. Arthur Miles's Committee. It relates to the year ended 31st March, 1860.

*For Maintenance of Local Forces—*

	£
St. Helena .....	482
Sierra Leone .....	562
Gambia .....	423
Gold Coast.....	234
Cape of Good Hope .....	56,176
Canada .....	13,393
Nova Scotia and New Brunswick .....	198

*For Pay and Allowances to British Troops, and for various Military Purposes—*

	£
New South Wales .....	33,806
Victoria .....	72,110
South Australia .....	7,172
Ceylon .....	97,198
Mauritius .....	25,354
Malta .....	6,200

*For Construction of Works, Barracks, &c., including the Cost of Constructing Works described as "Sea Defences" in Demerara—*

	£
Jamaica .....	1,637
Windward and Leeward Islands, with Guiana ....	29,279

*For General Purposes of Defence, in pursuance of a Convention executed under the Treaty of Paris—*

	£
Ionian Islands .....	25,000

Total ..... 369,224



These colonial disbursements were made in addition to the expenses defrayed by the Home Government. Five colonies contributed to Her Majesty's exchequer 73,315*l.*; the remainder "was expended within the dependencies for various military purposes."

The places which paid anything towards the military services provided by the funds of the mother country were:—

	£
New South Wales.....	14,712
Ionian Islands .....	18,449
Mauritius .....	10,000
Malta .....	6,200
Ceylon .....	23,954
Total .....	<u>73,315</u>

IV.—*Numbers Employed in the Military and Civil Services.*

It will be desirable to give some information as to the numbers employed in each service at the cost of the imperial exchequer.

The military strength afforded to the colonies in 1860, under the various branches of the service, amounted to 41,567 men and officers, thus divided:—\*

	Number.
Infantry .....	35,335
Artillery .....	3,867
Engineers .....	1,494
General Civil and Medical Staff .....	762
Total.....	<u>41,458</u>

The "pay and allowances" for the year are placed at 1,560,909*l.*; this is equal to 37*l.* 13*s.* for officers and privates. The cost of provisions, clothing, and arms is 622,473*l.*, or 15*l.* -*s.* 2*d.* a man.

The distribution of the troops in each colony is stated in Table IV (Appendix); with respect to each group the strength was thus allotted:—

	Total Strength.
1. The North American Group .....	4,685
2. „ West Indian Group .....	4,311
3. „ West African Group .....	1,040
4. „ South African Group .....	4,981
5. „ Eastern Group .....	4,024
6. „ Australian Group.....	3,195
7. „ Mixed Group .....	19,222
Total .....	<u>41,458</u>

The troops at Hong Kong are excluded from the reckoning of this table.

\* House of Commons' Paper, No. 423, "Report on Colonial Military Expenditure," 1861.

The total force in the British dependencies borne on the strength of the imperial army, on the 31st day of March, in each of the eleven years ended with 1861, is shown in the next table:—

Years.	Colonies, &c. (except Hong Kong).	Hong Kong.	Total.
1851 .....	42,498	1,052	43,550
'52 .....	43,678	1,068	44,746
'53 .....	45,848	1,068	46,916
'54 .....	40,242	745	40,987
'55 .....	39,637	546	40,183
1856 .....	45,147	589	45,736
'57 .....	50,547	731	51,278
'58 .....	38,501	1,484	39,985
'59 .....	37,883	1,400	39,283
'60 .....	40,566	10,818	51,384
'61 .....	44,481	7,979	52,460

*Note.*—Abstracted from report on “Colonial Military Expenditure,” p. 275.

The colonial civil service, at present chargeable to the English exchequer, consists of 144 officers of various ranks and duties, namely:—

Designation of Office.	Number.	Total of Salaries and Allowances.
		£
Governors .....	22	34,350
Judges .....	5	2,178
Magistrates.....	22	9,925
Bishops .....	8	12,400
Other ministers of religion .....	75	13,827
Other officers .....	12	5,347
Total .....	144	78,027

These salaries have been included under the head of “Civil Services” in the previous divisions. Of the magistrates, twenty-one are designated in the return\* as “special magistrates in the “West Indies.” They were appointed at the time of the emancipation of the slaves, and their salaries, so far as they are payable out of the imperial funds, will cease with the present holders of the office.

The total salaries and allowances, as set out in the last table, include 400*l.*, the amount paid to “other clergymen;” but the number who are thus classed is not stated.

\* House of Commons’ Paper, No. 147, “Colonies,” Sess. 1863.



The range of salary allotted and paid to the colonial civil service is thus shown :—

Designation of Office.	Lowest Paid.	Highest Paid.
	£	£
Governors .....	500	4,000
Judges.....	100	800
Magistrates.....	300	475
Bishops .....	500	2,500
Other ministers of religion .....	18	800

With respect to the magistrates, it should be observed, there is only one who enjoys the higher salary, all the others receiving 300*l.* each. The lowest paid under the class, “other ministers of religion,” are catechists in the diocese of Antigua.

V.—Recapitulation.

For some years past 40,000 to 50,000 British troops have been maintained for the defence of the colonies and dependencies at the expense of the imperial revenue. Between 1838 and 1860, the charge for military services has risen from 2,030,059*l.* to 3,342,243*l.*, or by 65 per cent.; the cost of the naval services, so far as any separate record can be obtained, has increased from 39,364*l.* to 100,411*l.*, or 155 per cent. On the other hand, the payments for civil services have fallen from 486,154*l.* to 167,222*l.*, which is equal to a decrease of 66 per cent. The total imperial expenditure for colonial purposes, including in 1838 a sum for St. Helena of 90,833*l.*, which is not divided and assigned to the different services, has increased in *twenty-two* years from 2,646,410*l.* to 3,606,876*l.*, which is equivalent to a rise of *thirty-six* per cent.

During the same interval, however, the population of our colonial empire has grown from 4,090,000 to 9,110,000 persons, or by 123 per cent., while its commerce has swollen from 33,000,000*l.* to 109,000,000*l.*, or by *two hundred and thirty* per cent.

## APPENDIX.

(I.)—*Statement of the Area and Population, and of the Revenue, Debt, and Commerce and the Amount of Imperial Expenditure in each for Colonial*

Colonies, &c.	Area, Square Miles.	Population according to latest Return.	Revenue Raised in the Colony in the Year 1860.  (000's omitted.)	Amount of Debt on 31st December, 1860.  (000's omitted.)	Commerce in 1860.	
					Value of Imports.  (000's omitted.)	Value of Exports.  (000's omitted.)
<b>I. NORTH AMERICAN GROUP.</b>						
1. Canada.....	210,020	2,506,755	1,499,	11,971,	7,078,	7,116,
2. Nova Scotia .....	18,671	332,264	177,	1,004,	1,702,	1,324,
3. New Brunswick .....	27,105	252,047	179,	1,036,	1,447,	916,
4. Prince Edward Island .....	2,173	80,857	29,	41,	230,	202,
5. Newfoundland.....	40,200	122,638	128,	175,	1,206,	1,223,
6. British Columbia ...	200,000 {	Not ascer- tained }	53,	5,	257,	11,
7. Vancouver Island ...	14,000	„	—	—	—	—
Total .....	512,169	3,294,561	2,065,	14,232,	11,920,	10,792,
<b>II. WEST INDIAN GROUP.</b>						
8. Jamaica .....	6,400	441,255	262,	738,	1,203,	1,226,
9. Honduras.....	13,500	25,635	36,	Nil	232,	293,
10. Turk's Islands .....	{ Not ascer- tained }	4,372	11,	1,	42,	34,
11. British Guiana .....	76,000	155,026	180,	527,	1,146,	1,513,
12. Trinidad .....	1,754	84,438	185,	136,	829,	715,
13. Windward Islands ...	777	258,933	157,	35,	1,368,	1,455,
14. Leeward „ .....	659	105,736	89,	59,	517,	596,
Total .....	99,090	1,075,395	920,	1,496,	5,337,	5,832,
<b>III. WEST AFRICAN GROUP.</b>						
15. Sierra Leone .....	468	41,624	32,	Nil	173,	304,
16. Gambia .....	20	6,939	10,	„	73,	109,
17. Gold Coast .....	6,000	151,346	7,	2,	112,	111,
Total .....	6,488	199,909	49,	2,	358,	524,
<b>IV. SOUTH AFRICAN GROUP.</b>						
18. Cape of Good Hope	104,931	231,323	525,	368,	2,466,	2,080,
19. Natal .....	14,337	157,583	87,	50,	355,	140,
Total .....	119,268	388,906	612,	418,	2,821,	2,220,



## APPENDIX.

*of the British Colonies and Dependencies, in the Year ended 31st December, 1860, Purposes, during the Year ended 31st March, 1860.*

Imperial Expenditure for Colonial Purposes, 1859-60.						Colonies, &c.
Military.				Civil.	Total, Civil and Military.	
Troops.	Transport.	Fortifications and Barracks.	Total, Military.			
£	£	£	£	£	£	
188,634	10,092	7,538	206,264	5,332	211,596	I. NORTH AMERICAN GROUP.
125,740	8,247	15,508	149,495 {	3,088 } —	152,583	1. Canada
—	—	—	—	1,500	1,500	2. Nova Scotia
17,396	922	2,489	20,807	500	21,307	3. New Brunswick
37,000	1,098	—	38,098	4,900	42,998	4. Prince Edward Island
Nil	Nil	Nil	Nil	Nil	Nil	5. Newfoundland
368,770	20,359	25,535	414,664	15,320	429,984	6. British Columbia
						7. Vancouver Island
						Total
						II. WEST INDIAN GROUP.
108,118	6,325	3,842	118,285	17,200	135,485	8. Jamaica
27,301	2,298	1,022	30,621	—	30,621	9. Honduras
—	—	—	—	—	—	10. Turk's Islands
190,379	9,854	13,560	213,793 {	6,700 } 950 } 16,950 } 15,728 }	254,121 {	11. British Guiana
						12. Trinidad
						13. Windward Islands
						14. Leeward „
325,798	18,477	18,424	362,699	57,528	420,227	Total
						III. WEST AFRICAN GROUP.
25,397	1,265	640	27,302	2,000	29,302	15. Sierra Leone
25,491	1,185	1,234	27,910	4,230	32,140	16. Gambia
18,063	1,193	525	19,781	4,000	23,781	17. Gold Coast
68,951	3,643	2,399	74,993	10,230	85,223	Total
						IV. SOUTH AFRICAN GROUP.
387,873	57,598	11,187	456,658 {	41,000 } — }	497,658 {	18. Cape of Good Hope
						19. Natal
387,873	57,598	11,187	456,658	41,000	497,658	Total

(I.)—*Statement of the Area and Population, and of the Revenue, Debt*

Colonies, &c.	Area, Square Miles.	Population according to latest Return.	Revenue Raised in the Colony in the Year 1860.  (000's omitted.)	Amount of Debt on 31st December, 1860.  (000's omitted.)	Commerce in 1860.	
					Value of Imports.  (000's omitted.)	Value of Exports.  (000's omitted.)
V. EASTERN GROUP.						
20. Ceylon .....	24,700	1,919,487	£ 767,	£ Nil	£ 3,551,	£ 2,551,
21. Mauritius.....	708	310,050	541,	„	2,769,	2,260,
22. Hong Kong * .....	32	119,321	94,	„	Cannot be	ascertained
23. Labuan.....	45	2,442	1,	„	38,	13,
Total .....	25,485	2,351,300	1,403,	Nil	6,358,	4,824,
VI. AUSTRALIAN GROUP.						
24. New South Wales ..	323,437	365,635	1,309,	3,820,	7,519,	5,072,
25. Victoria .....	86,831	548,944	3,039,	5,118,	15,094,	12,963,
26. Queensland .....	678,000	56,000	179,	Nil	742,	710,
27. South Australia .....	383,328	126,830	439,	870,	1,640,	1,784,
28. Western „ .....	978,000	15,691	61,	2,	169,	89,
29. Tasmania .....	26,215	90,211	268,	390,	1,006,	1,025,
30. New Zealand .....	106,259	155,070	465,	479,	1,548,	589,
Total .....	2,582,070	1,358,381	5,760,	10,679,	27,718,	22,232,
VII. MIXED GROUP.						
31. Heligoland .....	$\frac{1}{3}$	2,172	3,	5,	13,	9,
<i>Mediterranean :</i>						
32. Gibraltar .....	$1\frac{2}{3}$	15,462	34,	Nil	Cannot be	ascertained
33. Malta .....	115	141,220	146,	78,	2,982,	2,301,
34. Ionian Islands.....	1,041	228,669	172,	227,	1,489,	776,
Total (part.) .....	$1,157\frac{2}{3}$	385,351	352,	305,	4,471,	3,077,
<i>Islands in the North and South Atlantic :</i>						
35. Bermuda .....	24	11,450	16,	1,	153,	23,
36. Bahamas .....	2,921	35,287	36,	23,	131,	78,
37. St. Helena .....	47	6,444	21,	Nil	124,	11,
38. Falklands .....	7,600	566	1,	„	27,	6,
Total (part.) .....	10,592	53,747	74,	24,	435,	118,
Total .....	11,750	441,270	429,	334,	4,919,	3,204,
Grand Total .....	3,356,320	9,109,722	11,237,	27,161,	59,432,	49,626,

\* Hong Kong. The military expenses in respect of this station are *computed* from the 1860, because the whole of the China expedition passed through that place.



## and Commerce of the British Colonies and Dependencies—Contd.

Imperial Expenditure for Colonial Purposes, 1859-60.						Colonies, &c.
Military.				Civil.	Total, Civil and Military.	
Troops.	Transport.	Fortifi- cations and Barracks.	Total, Military.			
£	£	£	£	£	£	
102,549	6,924	795	110,268	—	110,268	V. EASTERN GROUP.
94,157	30,728	20,773	145,658	1,350	147,008	20. Ceylon
161,424	6,982	4,958	173,364	—	173,364	21. Mauritius
7,329	Nil	Nil	7,329	6,299	13,628	22. Hong Kong*
						23. Labuan
365,459	44,634	26,526	436,619	7,649	444,268	Total
						VI. AUSTRALIAN GROUP.
34,737	8,300	2	43,039	1,300	44,339	24. New South Wales
33,757	2,798	2	36,557	—	36,557	25. Victoria
Nil	Nil	Nil	Nil	Nil	Nil	26. Queensland
6,420	416	„	6,836	„	6,836	27. South Australia
22,733	3,088	125	25,946	11,385	37,331	28. Western „
32,853	1,451	809	35,113	6,000	41,113	29. Tasmania
94,814	10,038	—	104,852	—	104,852	30. New Zealand
225,314	26,091	938	252,343	18,685	271,028	Total
						VII. MIXED GROUP.
Nil	Nil	Nil	Nil	960	960	31. Heligoland
						<i>Mediterranean :</i>
372,806	23,066	24,823	420,695	Nil	420,695	32. Gibraltar
426,650	25,845	30,678	483,173	„	483,173	33. Malta
250,657	22,255	7,149	280,061	„	280,061	34. Ionian Islands
1,050,113	71,166	62,650	1,183,929	Nil	1,183,929	Total (part.)
						<i>Islands in the North and South Atlantic :</i>
74,770	10,727	2,090	87,587	4,050	91,637	35. Bermuda
29,250	1,775	1,255	32,280	1,200	33,480	36. Bahamas
34,373	2,202	1,779	38,354	6,533	44,887	37. St. Helena
2,054	63	Nil	2,117	4,067	6,184	38. Falklands
140,477	14,767	5,124	160,338	15,850	176,188	Total (part.)
1,190,560	85,933	67,774	1,344,267	16,810	1,361,077	Total
2,932,725	256,735	152,783	3,342,243	167,222	3,509,465	Grand Total

army estimates of the year. The separate cost for Hong Kong could not be ascertained for  
*Note.*—Abstracted from House of Commons' Paper, No. 147, "Colonies, &c.," 1863.

(II).—Statement of Particulars of Imperial Expenditure for Civil Services in British Colonies and Dependencies, in the Year ended 31st March, 1860.

Colonies, &c.	Judicial, Police, &c.	Eccle- siastical.	Civil Service.	Miscel- laneous.	Total.
I. NORTH AMERICAN GROUP—	£	£	£	£	£
1. Canada .....	—	2,990	—	2,342	5,332
2. Nova Scotia .....	—	3,088	—	—	3,088
3. Prince Edward Island ...	—	—	1,500	—	1,500
5. Newfoundland .....	—	500	—	—	500
6. British Columbia .....	—	—	4,900	—	4,900
II. WEST INDIAN GROUP—					
8. Jamaica .....	6,600	7,100	3,500	—	17,200
11. British Guiana .....	3,600	3,100	—	—	6,700
12. Trinidad .....	450	500	—	—	950
13. { Barbadoes .....	900	4,025	4,550	—	9,475
{ St. Vincent .....	450	150	1,300	—	1,900
{ Grenada .....	450	150	1,300	—	1,900
{ Tobago .....	600	225	1,300	—	2,125
{ St. Lucia ... ..	1,350	200	—	—	1,550
{ Antigua .....	—	3,068	3,600	—	6,668
{ Montserrat .....	—	181	500	—	681
14. { St. Kitts and Anguilla ...	1,000	275	1,300	—	2,575
{ Nevis .....	450	36	500	—	986
{ Virgin Islands .....	628	210	800	—	1,638
{ Dominica .....	1,800	80	1,300	—	3,180
III. WEST AFRICAN GROUP—					
15. Sierra Leone .....	—	—	2,000	—	2,000
16. Gambia .....	—	—	4,230	—	4,230
17. Gold Coast .....	—	—	4,000	—	4,000
IV. SOUTH AFRICAN GROUP—					
18. Cape of Good Hope .....	—	—	—	41,000	41,000
V. EASTERN GROUP—					
21. Mauritius .....	1,350	—	—	—	1,350
23. Labuan .....	—	—	6,299	—	6,299
VI. AUSTRALIAN GROUP—					
24. New South Wales .....	—	—	—	1,300	1,300
28. Western Australia .....	9,585	—	1,800	—	11,385
29. Tasmania .....	6,000	—	—	—	6,000
VII. MIXED GROUP—					
31. Heligoland .....	—	—	960	—	960
35. Bermuda .....	—	—	4,050	—	4,050
36. Bahamas .....	—	—	1,200	—	1,200
37. St. Helena .....	—	—	—	6,533	6,533
38. Falkland Islands .....	—	—	4,067	—	4,067
Total .....	35,213	25,928	54,956	51,175	167,222

Note.—Abstracted from House of Commons' Paper, No. 147. Sess. 1863.

\* \* In the column headed "Judicial, Police, &c.," the two first items are contributions to police and gaols in Australia on account of the presence of British convicts. The whole of the remaining items, with two exceptions, are salaries of stipendiary magistrates in the West Indies and Mauritius, expiring with the present holders of office. The exceptions are a small salary of 100*l.* to the Chief Justice of Anguilla, and 178*l.* to the Chief Justice in the Virgin Islands.

In the column headed "Ecclesiastical," the three first items are salaries to North American clergy, expiring with the present holders of office. All the remaining items are salaries of bishops and clergy in the West Indies, charged on the Consolidated Fund under the following Acts of Parliament: 6 Geo. IV, c. 88; 7 Geo. IV, c. 4; 5 and 6 Vict., c. 4.



(III.)—*Public Officers Employed in the British Colonies and Dependencies, Appointed and Paid by the Home Government in the Year 1862, as*  
 1. *Governors*; 2. *Bishops and Clergy*; 3. *Special Magistrates*; and  
 4. *Other Officers*.

## 1. GOVERNORS.

Colony.	Office.	Salary.	Remarks.
NORTH AMERICA.		£	
Prince Edward Island	Lieutenant-Governor	1,500	{ The Governor of British Columbia has received for the past year a special allowance of 1,200 <i>l.</i> from the colonial revenue.
Bermuda.....	Governor and Commander-in-Chief....	2,200	
Vancouver Island ....	” ”	1,800	
British Columbia ....	” ”		
WEST INDIES.			
Jamaica .....	Captain-General and Governor-in-Chief	3,500	{ Allowances : 300 <i>l.</i> for private secretary, and 250 <i>l.</i> for clerks and stationery.
Bahamas .....	Governor and Commander-in-Chief....	1,200	
Barbadoes & Windward Islands ....	” ”	4,000	
St. Vincent .....	Lieutenant-Governor	1,300	
Grenada .....	” ”	1,300	
Tobago .....	” ”	1,300	{ Allowances : 300 <i>l.</i> for private secretary, and 300 <i>l.</i> for clerks and stationery.
Antigua and Leeward Islands ....	Governor and Commander-in-Chief....	3,000	
Montserrat .....	President and senior member of the Council administering the Government	500	
St. Christopher .....	Lieutenant-Governor	1,300	
Nevis .....	President and senior member of the Council administering the Government	500	
Virgin Islands .....	” ”	800	{ Receives also a salary of 500 <i>l.</i> as consul, and allowance of 200 <i>l.</i> for office expenses.
Dominica .....	Lieutenant-Governor	1,300	
AFRICAN POSSESSIONS.			
Sierra Leone .....	Captain-General and Governor-in-Chief	2,000	
Gambia .....	Governor and Commander-in-Chief....	1,000	
Lagos .....	” ”	500	
AUSTRALIAN POSSESSIONS.			
Western Australia ....	” ”	1,800	
EASTERN COLONIES, FALKLAND ISLANDS, AND HELIGOLAND.			
Labuan .....	” ”	800	
Falkland Islands ....	” ”	900	
Heligoland .....	Lieutenant-Governor	500	
Total salaries and allowances of Governors ....		34,350	

(III.)—*Public Officers Employed in the British Colonies, &c.—Contd.*

## 2. BISHOPS AND CLERGY.

Colony.	Office.	Salary.	Remarks.
		£	
Canada .....	Bishop of Quebec .....	1,000	* These are Missionaries of the Society for the Propagation of the Gospel in Foreign Parts. The payments are made under an agreement with the Society, concluded in the year 1834, and will cease with the lives of the recipients. Twenty-two additional are paid by the Society.
	Archdeacon of Quebec .....	500	
	Rector of Quebec .....	400	
	allowance for house rent }	90	
	Rector of Montreal .....	300	
	Minister of Trinity Chapel, Quebec .....	200	
	Rector of Three Rivers ...	200	
	„ Frelighsburg ...	100	
	„ Clarenceville ...	100	
	Presbyterian minister, Argenteuil .....	100	
Nova Scotia.....	Archdeacon .....	300	† Retired in ill-health under arrangement sanctioned by Treasury in 1855, according to which the retiring bishop retained 1,400 <i>l.</i> out of the whole salary, 3,000 <i>l.</i> , attached to the office of bishop, while the co-adjutant receives the rest of the salary, 1,600 <i>l.</i> , and half the salary of the archdeaconry, 400 <i>l.</i>
	Eleven missionaries* .....	1,662	
Newfoundland .....	Minister of Scotch Church	75	
	Bishop of Newfoundland...	500	
Jamaica .....	Bishop† .....	1,400	
	„ .....	2,000	
	Archdeacon of Surrey .....	600	
	„ Cornwall ...	600	
Bahamas.....	„ Middlesex .....	800	
	Fourteen clergymen .....	2,100	
	Bishop .....	1,000	
Barbadoes .....	„ .....	2,500	
	Archdeacon of Barbadoes	500	
	„ Trinidad ...	250	
	Eleven clergymen, Barbadoes .....	775	
	Three clergymen, St. Vincent	150	
	Two „ St. Lucia	200	
	Six „ Trinidad	500	
	Two „ Grenada	150	
	Three „ Tobago ...	225	
	Bishop .....	2,000	
Antigua .....	Archdeacon of Antigua ...	500	
	„ St. Kitts ...	250	
	Eleven clergymen and teachers .....	268	
	Two clergymen and one catechist, Dominica ...	130	
	Four clergymen and three catechists, Montserrat	181	
	Two clergymen and one catechist, St. Kitts .....	75	
	Two catechists, Nevis .....	36	
	One clergyman and two catechists, Anguilla ...	200	
	Two clergymen, Tortola ...	210	
	Bishop .....	2,000	
British Guiana ...	Three clergymen .....	700	
	Other „ .....	400	
Total salaries of bishops and clergy .....		26,227	



(III.)—Public Officers Employed in the British Colonies, &c.—Contd.

3. SPECIAL MAGISTRATES IN THE WEST INDIES.

Colony.	Office.	Salary.	Remarks.
		£	
Jamaica .....	Nine magistrates .....	2,700	{ 1,350 <i>l.</i> for house and horse.
British Guiana .....	Five „ .....	1,500	750 <i>l.</i> „
Trinidad .....	One magistrate .....	300	150 <i>l.</i> „
Barbadoes .....	„ „ .....	300	150 <i>l.</i> „
St. Vincent .....	„ „ .....	300	150 <i>l.</i> „
Dominica .....	Three magistrates .....	900	450 <i>l.</i> „
Nevis .....	One magistrate .....	300	150 <i>l.</i> „
Total salaries and allowances of } magistrates .....		9,450	

4. OTHER OFFICERS.

Colony.	Office.	Salary and Allowances.	Remarks.
		£	
Bahamas .....	Judge in Admiralty, and Commissioner of Wreck Court.....	300*	* Is also Chief Justice of the Bahamas, and for that office receives 950 <i>l.</i> from the colonial revenue.
Anguilla .....	Chief Justice.....	100	
Virgin Islands.....	„ „ .....	178	
Bermuda .....	Colonial Secretary.....	800	
	Attorney-General .....	700	
	Chief Justice.....	500	
Gambia .....	Colonial Secretary and Treasurer .....	800	
	Civil Commandant (M'Carthy's Island) .....	300	
	Magistrate .....	130	
Falkland Islands....	Chaplain .....	475	
	Surgeon .....	350	
	Surveyor-General .....	350	
	Colonial Secretary.....	350	
	Treasurer and Police Magistrate.....	500	
Labuan .....	Surgeon .....	417	
	Chaplain .....	350	
	Harbour Master .....	300	
	Surveyor-General .....	300	
	Superintendent of Convicts .....	150	
Pitcairn's Island.....	Schoolmaster.....	300	
Total salaries of "other officers" ....		8,000	
Grand total of the four classes .....		78,027	

(IV.) — *Statement of the Force stationed in the British Colonies and Dependencies, during the Year ended 31st March, 1860.*

Colonies, &c.	Infantry.	Artillery.	Engineers.	General Civil and Medical Staff.	Total Strength.
<b>I. NORTH AMERICAN GROUP.</b>					
Canada .....	2,176	248	8	75	2,507
Nova Scotia and New Brunswick } .....	1,612	177	92	48	1,929
Newfoundland .....	237	1	1	10	249
<b>II. WEST INDIAN GROUP.</b>					
Jamaica .....	1,336	94	3	40	1,473
Honduras .....	329	24	2	11	366
Windward and Leeward Islands } .....	2,249	136	7	80	2,472
<b>III. WEST AFRICAN GROUP.</b>					
Sierra Leone .....	356	—	—	15	371
Gambia .....	334	—	—	16	350
Gold Coast .....	306	—	—	13	319
<b>IV. SOUTH AFRICAN GROUP.</b>					
Cape of Good Hope .....	4,451	176	239	115	4,981
<b>V. EASTERN GROUP.</b>					
Ceylon .....	2,202	135	7	26	2,370
Mauritius .....	1,449	133	48	24	1,654
Labuan .....	—	—	—	—	—
<b>VI. AUSTRALIAN GROUP.</b>					
New South Wales .....	507	106	32	8	653
Victoria .....	618	—	6	7	631
Tasmania .....	324	—	2	21	347
South Australia .....	93	—	7	2	102
West Australia .....	88	—	86	9	183
New Zealand .....	1,166	45	41	27	1,279
<b>VII. MIXED GROUP.</b>					
Bermuda .....	878	159	91	26	1,154
Bahamas .....	386	11	1	11	409
St. Helena .....	418	77	2	12	509
Falklands .....	37	—	—	—	37
Gibraltar .....	4,537	1,079	309	50	5,975
Malta .....	5,645	779	304	57	6,785
Ionian Islands .....	3,601	487	206	59	4,353
Totals .....	35,335	3,867	1,494	762	41,458

*Note.*—Abstracted from pp. 279—80 of “Report on Colonial Military Expenditure,” House of Commons’ Paper, No. 423, Sess. 1861.



(V.)—Statement of the Sums Expended for Military Purposes in the Colonies in 1858 ; distinguishing the Amount Paid by the Home Government from that Paid by the Colonies.

Colonies, &c.	Expenditure from		Total.
	Imperial Funds.	Colonial Funds.	
I. NORTH AMERICAN GROUP—	£	£	£
1. Canada.....	233,565	35,176	268,741
2. Nova Scotia.....	147,414	92	147,506
3. New Brunswick.....		Nil	18,190
5. Newfoundland.....	18,190	Nil	18,190
Total .....	399,169	35,268	434,437
II. WEST INDIAN GROUP—			
8. Jamaica .....	117,502	182	117,684
9. Honduras .....	30,231	Nil	30,231
13. Windward Islands.....	201,935	32,481	234,416
14. Leeward „ .....			
Total .....	349,668	32,663	382,331
III. WEST AFRICAN GROUP—			
15. Sierra Leone .....	26,685	385	27,070
16. Gambia .....	27,246	161	27,407
17. Gold Coast .....	16,763	330	17,093
Total .....	70,694	876	71,570
IV. SOUTH AFRICAN GROUP—			
18. Cape of Good Hope .....	538,372	40,467	578,839
V. EASTERN GROUP—			
20. Ceylon .....	129,507	85,851	215,358
21. Mauritius.....	85,129	22,634	107,754
22. Hong-Kong.....	Nil	—	—
23. Labuan.....	6,897	Nil	6,897
Total .....	221,524	108,485	330,009
VI. AUSTRALIAN GROUP—			
24. New South Wales .....	22,032	29,887	51,919
25. Victoria .....	49,924	40,400	90,324
27. South Australia .....	8,054	5,172	13,226
28. Western „ .....	24,561	Nil	24,561
29. Tasmania.....	38,781	„	38,781
30. New Zealand .....	111,339	„	111,339
Total .....	254,691	75,459	330,150
VII. MIXED GROUP—			
32. Gibraltar .....	322,014	Nil	322,014
33. Malta .....	341,520	6,200	347,720
34. Ionian Islands.....	201,909	25,000	226,909
35. Bermuda .....	80,550	Nil	80,550
36. Bahamas .....	34,193	96	34,289
37. St. Helena .....	36,251	453	36,704
38. Falklands.....	1,709	Nil	1,709
Total .....	1,018,146	31,749	1,049,895
Grand Total .....	2,852,264	324,967	3,177,231

Note.—Abstracted from House of Commons' Report on "Colonial Military Expenditure," No. 423, 1861, pp. 297—301.

*On the VITAL and SANITARY STATISTICS of our EUROPEAN ARMY in INDIA, compared with those of FRENCH TROOPS under like conditions of CLIMATE and LOCALITY. By JAMES BIRD, M.D.*

[Read before Section (F) of the British Association, at Newcastle, August, 1863.]

IF the progress of intelligence and advance of civilization have widened the source of some diseases, by developing to a greater extent the fatal results of vicious habits and disorderly passions among the multitude, some compensation for such will be found in the present advanced state of the several sciences, and more particularly of preventive and curative medicine, to which statistics have been successfully applied, in proof of the deductions that are made in regard to health. The practical application of the precepts of *hygiène*, by removing the sources of many diseases, has rendered them less frequent, and less fatal, in all climates, than they proved to be in former ages. Since the beginning of the present century, a remarkable and advantageous change has been thus effected; and, through such means, the ravages of epidemic diseases, and the mortality-rate of prisons, hospitals, and poor houses, existing for the use of our civil population, have been greatly diminished. Thus the disturbing influence of burial-grounds, filthy and undrained localities in London, of the seasons, and over-crowding on the life of man, which gave rise to prevailing diseases from the plague years 1593, 1603, 1625, 1636, and 1665 to that of 1838, have been so far ameliorated, according to the second report of the Registrar-General, as to cause a reduction of the mean mortality, from 25 to 2·81 per cent.\* In proportion also as the salubrious condition of London has been improved, the distribution of deaths, among the various periods of the year, has been more and more equalized, till the maximum of mortality for late years has ceased to correspond, as formerly, to the hot months of July, August, and September.

What has been so happily accomplished for the improved health and comfort of our civil population, can in a great measure be secured for our soldiers, both at home and abroad. The practical measures carried out after the Report of the Commissioners, appointed in 1857, to examine into the condition and administration of our army hospitals, and into the operation of regulations in force to prevent disease in our army, both at home and abroad, have been followed

\* "Second Report of the Registrar-General," p. 89, London, 1840.



by a reduction in the rate of mortality of our infantry, at home, from 15·5 per 1,000 effective men in 1828, to 8·77 in 1859 and 1860.\* Dr. T. Graham Balfour's report, for this last year, has also stated the mortality of infantry of the line at home, for fifteen years, 1839-53 inclusive, to have been 16·9 per 1,000. But for the credit of the medical department of the royal army, the fact must not be passed over, that the army statistical reports, begun in 1835 by Mr. Henry Marshall, Deputy Inspector General of Hospitals, while associated with Lieutenant Tulloch, 45th Regiment (now Major-General Sir A. M. Tulloch, K.C.B.), and continued by the latter, with the assistance of Dr. T. Graham Balfour (now Deputy Inspector General of Hospitals), first called attention to the condition of the soldier in regard to health, and the various deteriorating agencies which affected it. These reports led to the expediency of establishing the Registrar-General's Department, through which accurate information, on the extent and causes of mortality among the civil population, has been obtained. In 1838 the Commissioners' report, on the sanitary condition of the British army, was published and laid before Parliament, followed by that on the organization of the Indian army in 1859; and in this the present year, 1863, we are favoured with the very valuable and elaborate report of the Commissioners, appointed in 1859, to inquire into the sanitary state of the army in India.

In endeavouring to bring before you a short digest of the important information, collected in these volumes, regarding the influence of hot climates on the health of Europeans, and more particularly India, I propose to make free use of these reports, and of the statistical, sanitary, and medical reports of the army medical department, for the years 1859 and 1860; as well as the collateral information, obtainable from the various reports on the mortality and sickness of English troops in India, published in the several volumes of the Statistical Society's *Journal*. For the facts on which a comparison may be made between the sanitary statistics of English and French troops, in hot climates, I shall chiefly have recourse to those supplied by M. Boudin in his "*Traité de Géographie et de Statistique Médicales, et des Maladies Endémiques*," Paris, 1857, and in his other publications on this subject.

We can scarcely overestimate the importance of ascertaining the causes and extent of losses sustained by armies, even in their native country, and in times of peace, from the ravages of disease; inasmuch as we cannot otherwise determine the expense

\* The former is the death-rate of troops serving in Ireland for thirty-two years, from 1797 to 1828. See Boudin's "*Statistique de la Mortalité des Armées de Terre et de Mer*," Paris, 1846, p. 2, and Dr. Balfour's "*Statistical Report for 1860*," p. 13, where the mean of the two years is as stated.

of efficiently maintaining them, both at home and abroad. Independently of the annual decrements in armies, produced by various contingencies, as the good and bad materials that compose them, their ever-varying conditions under service, according to time and place, we must endeavour to fix the rates of their losses from disease, according to age and climate, and their ever variable reductions by war and invaliding. Military service, when performed under apparently most salubrious conditions of both locality and climate, whether at home or abroad, is generally found associated with a higher rate of mortality than that incident to the indigenous inhabitants of the soil; and as this difference is not so strongly marked among officers, subject to like climatic influences, as among the non-commissioned officers and men, it is for the most part produced by a greater amount of intemperance and other vicious habits among the latter, and by overcrowding in the barracks. The proof of this will be manifest from the following ratios of mortality among the civil male population of England and Wales generally, of the officers of the royal artillery serving in England during the year 1860, and of the infantry of the line from 1839 to 1853 :—

	Mean Mortality, per 1,000.
Civil male population, England and Wales generally* .....	9·28
Officers of the foot artillery, at home, 1860.....	7·04
Infantry of the line, at home, for fifteen years, 1839-53 ....	16·8

The proportion of mortality among the civil population of France, between 20 and 30 years of age, rises to 12 per 1,000; that of the infantry of the army at home, 22·3 per 1,000,† and of the non-commissioned officers 10·8.

Since the sickness and sanitary condition of armies, therefore, may be derivable from mixed causes of locality, overcrowding in barracks, meteorological climate, dietetic errors, and vice, it is necessary to carefully sift and separate such mixed causes, and assign to each their due influence, in the production of increased ratios of military sickness and mortality. Much may be otherwise laid to the deteriorating influences of climate, which are only effects of insalubrious localities, overcrowding, dietetic errors, and vicious habits.

Sickness and increased ratios of mortality among European masses, removed to new climates, seem inseparably associated with

\* The data for England and Wales generally, have been obtained from Dr. Farr's life table, in the twelfth volume of the Registrar-General's "Reports," and from the "Army Statistical and Sanitary Report," 1860, p. 141, and Table 55 in Appendix to the Sanitary Commissioners' Report "On the Regulations affecting the Sanitary Condition of the Army," London, 1858, p. 476.

† M. Boudin's "Statistique Médicale des Armées," p. 8, and "Statistique de l'Etat Sanitaire et de la Mortalité des Armées de Terre et de Mer," Paris, 1846, p. 16.



smaller numerical degrees of latitude, as we advance nearer the Equator; and even in France we find that, for the provinces of its northern latitudes, the average mortality is 1 in 44, but for those of the south 1 in 33. How much more then must such averages increase among English troops, serving in the tropical climates of India, or of French troops in other hot climates, under like insalubrious conditions. The localities occupied by either, and which come properly under the denomination of hot climates, lie from the equator to the thirtieth and sometimes the thirty-fifth degree of north or south latitude. In Asia, and regions of the south, these are India on this side and beyond the Ganges, Ceylon, Arabia, Persia, and Cochin China; in North Africa, Algeria, and on the west Senegal; and to the south, the African islands of Réunion, Mauritius, Bourbon, and Madagascar; and in South America, Guiana, the French Antilles, or Martinique and Guadeloupe, and the English Antilles, or islands in the Gulf of Mexico, with all that part of our possessions called the West Indies.

It is not less evident, from Dr. Forry's report of the sickness and mortality in the army of the United States, that the ratios of military mortality in that country increase, as we proceed from the north to the south:—

North .....	18·8	deaths for 1,000	effective strength.
South .....	52·3	„	„
Centre .....	44·2	„	„

the causes for such increase being the combined insalubrious agencies of increased temperature and malarious localities. The greatly increased proportion of *miasmatic endemic diseases*, which we find admitted into hospitals from such places, clearly indicates that they have their origin more from endemic influences of locality, than the peculiar meteorological condition of the climate. It was for these reasons I stated in my evidence before the Royal Commission, appointed in 1859, “that in *tropical latitudes* the mortality must be “higher than in *temperate latitudes*, even after all that may be done “for the troops by the very best prophylactic measures, both *endemic* “and *dietetic*.”

After these preliminary observations on the mortality and sanitary state of English and French troops, employed in their native country, I proceed to briefly consider their relative mortality, and sanitary condition, when serving in *tropical climates*, more particularly India: and for the state of the former, past and present, I cannot do better than refer for information to the “Report of the Royal Sanitary “Commission,” just published.

The ratios of mortality, deduced from given numbers of men, are at once the measure of their lives, and the healthiness of the places

they inhabit. They differ for the different countries of Europe, and for the localities, according to the greater or less salubrity of particular regions and their geological formation; and are always lower for the indigenous inhabitants of the soil, than for those who migrate there from other countries. Those for Europeans, exposed to the climatic vicissitudes of military life, and other contingencies of service, show an increase, in proportion to the proximity of residence to the equator, and unremoved sources of endemic disease there, as bad water, bad drainage, filthy locality, overcrowded and ill-constructed barracks, in combination with dietetic errors, vice, intemperance, and want of suitable clothing, occupation, and exercise, according to the conditions of climate and seasons. It would be quite impossible, amidst such extended subjects of inquiry, to select more than a tithe of them for illustration on this occasion; and I shall, therefore, confine myself to the three following heads:—

1st. Mortality, and other ratios of decrement of the effective strength of European troops, serving in India, and other hot climates.

2nd. The sanitary ameliorations of the sickness and mortality effected of late years.

3rd. The sanitary measures still necessary for application to English troops in India.

TABLE I.—*Annual Rate of Mortality in Periods of Years, from 1770 to 1856, in each of the Indian Presidencies.*

Years.	Deaths Annually to 1,000 Strength.				Remarks.
	Bengal.	Bombay.	Madras.	India.	
1770–1800 ....	70·6	78·2	37·5	54·7	{ The siege of Seringa- patam and conquest of Mysore { General war in the Car- natic { Conquest of Dutch and French islands, Mah- ratta war, and cholera Burmese war
1800–10 .....	91·5	84·5	54·8	73·7	
'10–20 .....	68·7	99·6	97·0	84·8	
'20–30 .....	84·5	97·9	95·2	90·7	
'30–40 .....	60·1	46·3	55·5	55·7	
'40–50 .....	79·5	68·3	43·5	65·4	
'50–56 .....	67·8	31·1	44·3	50·7	
Total .....	—	—	—	67·9	

*Note.*—This table is copied from Table 10 of the *Précis* of the “Commissioners’ Report of the Sanitary State of the Army in India,” London, 1863, p. 178.

According to this table, copied from No. 10 in the Appendix to the “Report of the Commissioners on the Sanitary State of the



"Army in India," the average rate of military mortality there, for eighty-six years, is given at 67·9 per 1,000; being at the same time stated, in the body of the report, at 69 in 1,000 during the present century. The following are the words of the report:— "The deaths in the fifty-six years, 1800-56, among all the Company's non-commissioned officers and men, including invalids, in India, amounted to 40,420 out of an aggregate of 588,820 years of life, obtained by adding up the average annual strength in those years; so the annual rate of mortality has been 69 in 1,000 during the present century.

"The mortality-rate was as high as 134 in the first Mahratta war, and it was as low as 41 in 1852. It was high again in the years of mutiny, and it has been subsequently lower than the Indian standard. From the rate of 55 in 1770-99, the rate rose to 85 in the thirty years, 1800-29; and the mortality fell to 58 in the twenty-seven years, 1830-56; so that the death-rate of the British soldier, since the first occupation of the country down to the present day, has oscillated round 69 per 1,000."

TABLE II.—*The Mortality of the French Army in Hot Climates, except Algeria, for Ten Years, from 1838 to 1847, is thus Distributed in Ratios per 1,000.*

Years.	Martinique.	Guadeloupe.	Guiana.	Senegal.	Réunion.	Average.
1838.....	79·1	192·6	48·0	152·5	32·4	110·6
'39.....	165·2	158·8	25·0	43·1	25·5	117·4
'40.....	103·5	156·9	19·1	65·5	20·0	98·4
'41.....	102·8	129·5	39·5	75·2	84·8	98·8
'42.....	86·8	42·1	26·5	62·0	30·5	52·1
1843.....	103·2	68·9	29·8	82·5	45·5	73·3
'44.....	78·0	72·1	19·2	66·2	28·1	58·8
'45.....	53·3	45·6	19·2	41·3	13·5	38·2
'46.....	93·6	25·6	16·6	27·6	19·7	37·4
'47.....	60·3	28·0	12·5	38·9	25·5	37·2
Mean ....	90·4	89·0	25·3	61·7	30·5	69·5

It is quite true that, in this next table for French troops in tropical climates, a like average of 69·5 per 1,000 is given; and the contrast is remarkable to show how much the rate is caused by hot climates and localities, and is not chiefly caused there by intemperance and vicious habits; a conclusion long since arrived at by Dr. Edward Balfour's statistics, and observations on the means of maintaining troops in health, read before the Statistical Section of this Associa-



tion, at Swansea, in August, 1848.\* It is with earnestness he protests against partial deductions on this subject, and says, "Exertions solely devoted to check intemperance, even if successful, can only palliate, but never remove, the evils that spring from climate. It may, likewise, by withdrawing attention from one great, and I believe the greatest cause of sickness, the noxious influence of particular localities, tend to retard the day, which I hope to see, when healthy sites having been selected for cantonments, the English soldier shall enjoy, in India, almost as good health as in his native country." There can be hardly a difference of opinion as to the important part vice and intemperance play, in increasing the sickness and mortality of English soldiers abroad, and for the imperative necessity "of discontinuing the sale of spirits in the canteens of India," and of adapting the soldier's diet to season and latitude. Still these unremoved sources of the sickness and mortality there, are not the main causes of the increased ratios of both; as Miss Nightingale's summary of the evidence, in the stational returns, proves† that the miasmatic diseases of fevers, diarrhœa, cholera, and dysentery, are produced under elevated temperature, by bad water, misplaced lavatories and cesspools, bad drainage, filthy bazars, and overcrowding in barracks, huts, and sick-wards.

But reverting to the mortality-rate, 69 per 1,000, as being hitherto the normal one for sickness and disease, in India, it is scarcely a true representation of the deduction that should be drawn, from the facts collected in the various statistical tables, published in the Appendix to the Commissioners' own Report, sufficient allowance not being made for the increased casualties of war, cholera, and invaliding, during the period of fifty-six years, 1800-56, assumed for the basis of some of the calculations in the report. Of these fifty-six years, twenty-five, including the Sikh war, 1845-46, and the Punjaub campaign, 1848-49, were periods of war and cholera; this last disease, according to Inspector-General Burke's Indian returns, 1826-32, having for these six years increased the mortality 11·5 per 1,000 of the effective strength.‡ Besides the average difference of mortality, between the war-rate and that of peace, or 27 per 1,000, as shown in the following table for Madras troops, not having been deducted, while the rate of invaliding in India is included, and thought of no importance, the assumed average of death, and decrements from natural causes, is thus raised to 69. It was not without good reason, therefore, that the Secretary of State for India, in his place in the House of Commons, the 23rd of July last, said, "that

\* "*Journal of the Statistical Society*," vol. xii, p. 34, 1849.

† "*Royal Commissioners' Report*," vol. i, folio, p. 347.

‡ Quoted by M. Boudin, p. 52 of his "*Etat Sanitaire et Mortalité des Armées de Terre et de Mer*," Paris, 1846.

TABLE III.—*Madras Troops.*

Years.	Service.	Number of Years.	Number of Deaths.	Average Annual Mean Strength.	Annual Average Number of Deaths.	Ratio per 1,000 of Deaths to Mean Strength.
WAR.						
1793–98....	Carnatic .....	6	1,549	5·696	258	49
'99–1800	{ Mysore and con- quered countries }	2	1,548	6·967	774	111
1801–5 ....	{ General war in the Carnatic, con- quered countries, and the Deccan.... }	5	3,691	8·355	738	88
'10–11....	{ French and Dutch islands .....	2	1,844	13·328	922	69
'17–19....	{ Pindarie war in the Deccan, and Ma- luca in Hindo- stan .....	3	2,993	13·585	997	73
'24–26....	Burmah.....	3	3,646	10·144	1,215	119
Total .....		21	15,271	8·796	727	82
PEACE.						
1806–9 ....	Peace .....	4	2,645	9·318	661	70
'12–16....	Marching .....	5	3,460	12·133	692	57
'20–23 ...	Peace.....	4	2,468	10·916	617	56
'27–38....	„ .....	12	6,221	10·660	518	48
Total .....		25	14,794	10·781	592	55

“ the general conclusion as to the mortality, being based on facts “ going far back, does not afford a very good index of the sanitary “ state of the Indian army at the present moment.”\* When we turn to Table IV in the Appendix of the Report, in which the rates of mortality for periods of service in the three presidencies, 1847-56, are given, we find that 51·2 per 1,000, inclusive of other casualties, was the average annual mortality of the late East India Company’s European troops for those ten years. It is stated, in a foot note to the table, that the mortality for this period was considerably below the previous average in Madras and Bombay ; but it is doubtless a more close approximation to the true rate of the mortality in India, for the last twenty-six years, than the one taken for the basis of the Sanitary Commissioners Report. In Dr. T. G. Balfour’s summary of the health of the royal army previous to 1859,† the following two tables give the rates for the three presidencies :—

\* “ Times ” newspaper of the 24th July, 1863, p. 7.

† “ Statistical, Sanitary, and Medical Reports of the British Army for the “ Year 1860,” pp. 133 and 138, London, 1862.

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		1830-37.	1838-56.
Madras .....		52·2 per 1,000	41·5 per 1,000
Bombay .....		33·1     "	60·9     "
Bengal .....		44·5     "	76·2     "
Average .....		43·3     "	59·5     " (for 26 years)

The mean of these two tables being 51·4 or the average mortality of the late East India Company's European forces, as given in the table of the report before quoted. Additional proof of this average being nearer the true one, for late years, than that assumed in the Commissioners' Report, may be drawn from the rate per cent. of invaliding for fifteen years' service.

Among the effective non-commissioned officers and men of the late Company's European forces, during the years 1847-56, as

TABLE IV.—*The Casualties in the Effective Non-commissioned Officers and Men of the Local European Forces in India during the Years 1847-56.*

Years of Service.	Strength. (Years of Life.)	Casualties.				Rate per Cent.			
		Deaths. (D.)	Invaliding. (I.)	D. + I.	All Causes.	Deaths. (D.)	Invaliding. (I.)	D. + I.	All Causes.
1 .....	14·390	938	45	983	1,547	6·52	·31	6·83	10·75
1-2 .....	11·630	623	88	711	1,085	5·36	·75	6·11	9·32
2-3 .....	9·220	518	83	601	872	5·62	·90	6·52	9·45
3-4 .....	9·530	470	121	591	907	4·93	1·27	6·20	9·51
4-5 .....	10·120	446	128	574	871	4·41	1·26	5·67	8·60
5-10 .....	41·860	1,968	468	2,436	4,048	4·70	1·12	5·82	9·67
10-15 .....	21·440	1,131	597	1,728	2,949	5·28	2·78	8·06	13·75
15-20 .....	9·976	429	598	1,027	1,424	4·30	6·00	10·30	14·28
20 and up- wards.... }	43·090	193	779	972	1,207	6·25	25·21	31·46	39·06

*Note.*—This table is compiled from the tables of casualties of effectives in the presidencies. Under "invalided," are included here, besides the true invalids, the following casualties:—1. Discharged by purchase. 2. Discharged on account of term expired or otherwise. 3. Promoted. 4. Transferred to town major's list. 5. Transferred to other corps. 6. Deserted. 7. Missing, &c. 8. Other causes. Those on the town major's list of Bengal are included among the effectives.

given in Table IV; and which rate, 27·8, deducted from 64·3, the mean casualty-rate of the last twenty-five years, 1838-62, inclusive of invaliding and cholera, would leave the normal death-rate of late



years for India 36·5 per 1,000: the mean death-rate of our European troops in the three presidencies from 1850-54, being only 40·4.\*

According to that table, the rate per cent. for deaths and discharges, among men who had served ten to fifteen years, is 5·28 per cent.; which, when raised for 1,000, would give 52·8 as the mortality-rate. In the same table 2·78 is given as the rate per cent. of invaliding at the above period of service, and when this is raised for 1,000 it gives the other casualties of service, 27·8, the difference, as already shown, between the war and peace rates of mortality in India, previous to the year 1838. Perfect reliance cannot then, I think, be placed on the returns of the East India Company's troops, prior to this year, as the mortality-rates obtained from them include many abnormal casualties of service.

But descending from general statistical principles, for securing trustworthy conclusions on the subject of military mortality, let us enter on the statement of particular facts, regarding the increase and diminution of military death-rates for war and peace, brought together in Table V.

In this, the annual rate of mortality per 1,000, for the line forces of India, during the thirty-nine years, from 1817 to 1855 inclusive, is calculated from the table at p. 319 of the report. We here see that during the first Burmese war and the siege of Bhurtpoor, the rate rose as high as 158 per 1,000; and varied in times of peace from an average of 75 to 32·5 per 1,000. For seventeen years of war the death-rate was 80 per 1,000; and for twenty-two years of peace, 51·3: averages that correspond very nearly with those given in Table III.

But while the average mortality of the British army in India, from 1830 to 1837, was only 43·3 per 1,000, according to Dr. Balfour's summary before quoted; in the next period, from 1838 to 1856, it rose to 59·5, including the mortality from wounds and service during the Afghan war, the Cabul massacre, the Sind and Gwalior campaigns, the Sikh war, 1845-46, and the Punjaub campaign, 1847-48, with the Second Burmese war, 1852-53; and when we deduct the casualties of war and service for this last period, the mortality-rate, 42·5 per 1,000, would, I believe, be a nearer approach to the normal standard of India during peace, than the mean of the two tables, 51·4.

\* This is the mean taken from the Report of the Commissioners, appointed to inquire into the organization of the Indian Army, presented to Parliament in 1859; and has been quoted by the "Army Statistical Report, 1860," at p. 111. A well-written article, in the "Times of India," September 9th, 1863, says, "A total mortality of 2,360 men, upon a strength of 73,000, gives about 32 per 1,000 as the average of all India; the Commissioners make it 70; and we are persuaded that, if their figure be divided by 2, the result will give about the right average."

TABLE V.—*Showing the Annual Rate of Mortality per 1,000, for the European Line Forces of India, during Thirty-nine Years, from 1817 to 1855 inclusive; calculated from the Table at p. 319 of the "Sanitary Report." 1863.*

Years.	Rate of Deaths per 1,000.	Remarks.
1817.....	69	Pindaree war
1818.....	85	} Average mortality 75 per 1,000 in peace
'19.....	80	
'20.....	77	
'21.....	68	
'22.....	73	
'23.....	67	
1824.....	129	} Burmese war Siege of Bhurtpoor
'25.....	157	
'26.....	158	
1827.....	75	} Average mortality 53 per 1,000 in peace
'28.....	66	
'29.....	50	
'30.....	36	
'31.....	41	
'32.....	47	
1833.....	63	Coorg war
1834.....	70	} Average mortality 50 per 1,000 in peace
'35.....	34	
'36.....	43	
'37.....	53	
'38.....	52	
1839.....	76	} Afghan war Cabul massacre
'40.....	95	
'41.....	90	
'42.....	107	
1843.....	77	} Sind campaign Gwalior „
'44.....	81	
1845.....	124	} First Sikh war
'46.....	85	
1847.....	47	} Second Sikh war
'48.....	65	
1849.....	67	} Average 42 per 1,000 in peace
1850.....	42	
'51.....	42	
1852.....	63	} Second Burmese war
'53.....	49	
1854.....	35	} Average mortality 32·5 in peace
'55.....	30	

It was stated by Sir Charles Wood, in his speech already referred to,\* that “during the mutiny in India, the mortality in twenty “regiments which were sent from this country, but which were not “in action, was only 34 per 1,000,” which must be exclusive of war casualties, I should think; and in the next table, or No. VI, which

TABLE VI.—*Annual Rate of Mortality and Invaliding of Her Majesty's Troops serving in India, 1861, exclusive of late Honourable East India Company's Troops.*

	Bengal.	Madras.	Bombay.	Total. — India.	Deaths per 1,000 Strength.
Mean effective strength, 1861 ....	37,483	10,739	83,60	57,082	—
Admitted into Indian hospitals .....	73,233	13,471	15,649	102,353	—
Number of days under treatment (average sick time to each soldier) ....	29·30	21·04	26·65	25·66	—
Deaths in Indian hospitals .....	16·42	156·	204·	2·002	35·3
Killed in battle .....	None	None	None	None	—
Deaths on board ship, on passage home, and in hospitals at home .....	66·	14·	15·	95·	1·67
Invalided.....	Returns not received	38·2	255·	Bengal returns not received	33·3
		6·37			

is a return of mortality and invaliding of Her Majesty's troops serving in India, 1861, the actual mortality in India from locality and climate is 35·3 per 1,000; the other casualties for invaliding and deaths on the passage home being 33·3. All such sources of discrepancy, as direct and indirect results from warfare, and other contingencies, must be eliminated from our statistical data before a true estimated rate of the mortality, from natural causes of locality and climate, is attainable. If such peculiarities of service are not attended to, and minutely enumerated for all comparisons, we can arrive at only vague and by no means satisfactory conclusions.

Colonel Sykes' paper,† on the Sickness, Mortality, and Invaliding in the East India Company's European and Native Troops, from

\* “Times” newspaper, 24th July, 1863.  
† This, which is quoted from the *Statistical Journal*, vol. x, p. 100, forms Table 28, “Appendix of the Commissioners' Sanitary Report,” 8vo, p. 195.



1825-44, the last being the year previous to the Sikh war, gives the rate per cent. of European mortality 5·409, and that of invaliding 2·884 per cent., which rates, when raised for 1,000 men, become respectively 54·09 and 28·84. The former rate, however, includes 7·24 per 1,000 of deaths from cholera; and which, when deducted from the aggregate death-rate, leaves that of ordinary deaths from other natural causes 46·85 per 1,000. The rate for invaliding is a little higher than that I have employed for deduction, to obtain the hitherto normal rate of European mortality in India.

*The Sanitary Ameliorations of the Sickness and Mortality  
effected of late Years.*

I find, in regard to the health of the British Army at home, exclusive of the Horse Artillery, that for fifteen years, previous to 1854, the average death-rate was 14·7, and that of invaliding, 32·3 per 1,000; but that in 1860, and since the practical application of sanitary measures, adapted to climate and locality, these rates have respectively fallen to 7·32 and 21·30,\* indicating a gain to the effective strength of 18·38 per 1,000. The proportion admitted for enthetic (or syphilitic) diseases, and constantly in hospital, was 23·69 per 1,000. In the hot climates of Jamaica, Ceylon, and Mauritius, where, from the 1st of January, 1830, to the 31st March, 1837, the death-rates were 91·49 and 34·6 respectively; these had fallen, in the year 1860, to 20·2, 19·6, and 23·8 per 1,000.

With the introduction into India of improved sanitary improvements, adapted to climate and localities, with restraints on vice and intemperance, corresponding decreasing rates, to indicate augmented health among our troops, must follow as natural results. The present army medical statistics, in reference to India, as I stated in my evidence, are not of any value in determining the question of how much reduction in the rates of mortality may be ultimately effected for that country; for, when uncombined with meteorological and medical observations, on the physiological and pathological effects of localities and climate, and classified arrangement of the prevailing endemic diseases, they are but relative proofs of hitherto unremoved sources of such diseases. The first right step in this direction was the organization of a statistical branch of the medical department of the army, with the introduction of new forms of returns, after the Report of the Sanitary Commission of 1858; but a sufficient period has not yet elapsed for the production of those accurate and trustworthy statistical data, which we may confidently look for in the course of time.

Nevertheless well marked reductions in the death-rates of English

\* See pp. 16 and 141 of the "Army Sanitary Report," 1860.

troops, serving abroad, have been effected. During the period anterior to 1836, the rates for the Mediterranean stood as follows:—

Gibraltar .....	22·0	deaths per 1,000 men.
Malta .....	18·7	„
Ionian Islands .....	28·3	„
<hr/>		
Mean death-rate .....	23·5	„

During the period from 1844 to March, 1846, the mortality had fallen to the following numbers:—

	Effective Mean Strength.	Mortality.			Death-rate per 1,000 Men.
		1844.	1845.	Total.	
Gibraltar .....	3,371	41	41	82	12·2
Malta .....	1,858	36	31	67	18·
Ionian Islands .....	2,537	35	33	68	13·4
Total for the Medi- terranean..... }	7,766	112	105	217	14·5

For the period again 1859 and 1860, the diminution stood thus:—

	Effective Mean Strength.	Mortality.		Death-rate per 1,000 Men.
		1859.	1860.	
Gibraltar.....	5,381	40	62	9·41
Malta .....	5,630	101	63	18·8
Ionian Islands .....	3,875	46	29	9·8
Mediterranean .....	14,886	187	154	12·6

The results of these two last periods present in their favour, when compared with 1836, the following diminution of the mortality:—

Gibraltar .....	11·2	deaths per 1,000.
Malta .....	0·3	„
The Ionian Islands .....	11·2	„
<hr/>		
Mean for Mediterranean .....	7·5	„

The annual mean difference being a gain of 16 men per 1,000 of the effective strength in our healthy colonial commands.



Turning to British possessions, reputed the most unhealthy, we find according to Sir A. Tulloch's statistical investigations, and the Army Report 1860, that the results of sanitary ameliorations there have been yet more striking and satisfactory; and have followed measures for abandoning low, undrained, and filthy stations, and occupying the higher ground as the sites of well constructed barracks and hospitals, with attention to all other sanitary precautions, that have of late years been deemed necessary for securing the health of our soldiers abroad. The colonies, in which such improvements have been carried out, are Mauritius, Jamaica, the Antilles with British Guiana, and Ceylon. Previous to 1836, the mean mortality of our forces occupying these colonies, was 84·2 per 1,000; which, during the period from 1844-45, on an effective strength of 7,194 men, had been reduced to 42·1 per 1,000; and in the last year 1860, for which we have authentic returns, the mean mortality, including invalid deaths of the four stations, was only 17·57 per 1,000 of the effective mean strength. In applying the mortality-rate, before 1836, to an effective strength of 7,194 men, it will be found that we permitted 1,212 of these to die annually; but from 1844 to 1845, only 606 died; and in 1860 less than 303, being more than an annual saving of life of 1,000 men for every effective force of 7,194 soldiers. In proof of the mortality-rate for 1860, it may be well to here append, from the "Army Statistical Report," the particulars of those four colonies:—

	Effective Mean Strength.	Mortality, 1860.	Death-rate per 1,000.
			Mean.
Mauritius .....	1,886	45	23·86
Jamaica .....	594	12	20·20
Antilles and Guiana .....	1,255	7	5·58
Ceylon.....	916	18	19·65
Total .....	4,651	82	17·17

With regard to India it is, as M. Boudin remarks, that part of the English army over which military authority has not hitherto exercised any control, regarding the choice of places of encampment, or the duration of residence in certain insalubrious localities, and the relief of the troops. I would speak, says he, of the East Indian army, as that part of the British army, which is far from having gone through those sanitary ameliorations, which have comparatively followed the rules of *hygiène*. The following table epitomizes, for

the years 1845 and 1846, the effective strength of European troops, and the rate of mortality, in each of the three presidencies of Bombay, Madras, and Bengal:—

	Effective.	Deaths.
Bombay, 1845 .....	6,324	824
„ '46 .....	4,710	337
Madras, 1845 .....	7,850	276
„ '46 .....	7,535	351
Bengal, 1844 .....	11,003	1,028
„ '45 .....	11,280	984
Total .....	48,702	3,800

According to this document it follows that from an effective mean of 24,351 men, 1,900 are lost annually by death, or 78 men per 1,000. Now though M. Boudin is perfectly correct as to the rate per 1,000 during those years, yet they formed the period of the Sikh war, and 27 or 28 for casualties of wounds, and war service in climates not Indian, ought to have been deducted therefrom, leaving the mortality, from natural causes, at 50 per 1,000. This is a further illustration of the necessity of avoiding all sweeping conclusions, as to the mortality-rate, without perfect records and knowledge of all contingencies influencing the results. Still the mortality-rate of 50 per 1,000, as caused by preventible causes, is much beyond what it ought to be for India. The Commissioners' Sanitary Report of 1863 presents, on this subject, an overwhelming amount of evidence, and without exaggeration shows that in India there has been a fatal neglect of the conditions which injure the health of soldiers and increase the mortality; and that the Indian Government have not hitherto carried out what was essential to improve the sanitary state and well-being of their soldiers.

It is but just to say, however, that no inconsiderable ameliorations of their sanitary state have been effected of late years, as the following statistical data indicate. The death-rates in India for five years, 1850-54, stood as follows for the three presidencies:—

Bombay.....	26·09	deaths per 1,000 men.
Madras .....	39·76	„
Bengal .....	55·56	„
Mean .....	<u>40·4</u>	„

In 1860, these proportions for the British Army, including invalids, were considerably reduced, giving a mean diminution of 9·3 per



1,000 of our soldiers. The admissions and deaths occurred in the following proportions, the mean mortality ratio per 1,000 being less than that in Table VI for 1861 :—

	Average Strength.	Admissions into Hospital.	Deaths.			Ratio per 1,000 of Mean Strength.	
			In India.	Of Invalids.	Total.	Admitted.	Died.
Bombay .....	11,388	22,013	332	29	361	1,933	31·70
Madras .....	10,696	15,901	193	49	242	1,487	22·63
Bengal.....	42,371	85,693	1,569	99	1,668	2,023	39·37
Total .....	64,455	123,607	2,094	197	2,271	5,643	31·1

In thus reviewing the rates of Indian mortality, and the sanitary ameliorations effected of late years for the British army, let us turn for a moment to consider the statistics of French military mortality under like conditions of climate and locality. I have already noticed that, for their tropical settlements of America and Africa, Table II sets down their mean mortality for ten years, 1838 to 1847, at 69·5 per 1,000. While the mean mortality of the civil population of France, at the soldier's age, is 12 per 1,000, that of the infantry of the line rises to 22·3. From 1819 to 1838, this in Senegal became 123·8, in Guadeloupe 101·3, in Martinique 102·8, in French Guiana 32·3, and in Bourbon 25·6 per 1,000. In Algeria, on an effective strength of 108,000 men for ten years, from 1837 to 1846, the mean death-rate was 75·8 per 1,000; from which probably the average casualty-rate for war and service ought to be deducted. This would reduce the mortality to nearly the same standard as for India; but whether such reduction is allowable, I know not, being altogether ignorant of the contingencies of that period. M. Boudin, however, adds that the simple comparison of the results, with those among English troops, proves better than all reasoning how much of the way is yet open for the French to accomplish in regard to military *hygiène*. In Table VII, which I have copied from him, regarding the losses of the French troops in Algeria 1846, it would appear that from an effective of 99,700 men, the deaths in the African hospitals were 68·8 per 1,000; and that the other casualties of discharged and sent to France, killed in battle, deaths in the hospitals of France, pensioned and invalided, amounted to 28·3; and would raise the total decrements of the troops to 97·1 per 1,000.

TABLE VII.—*Of the Losses of the French Troops in Algeria, for 1846, on a Mean Effective Strength of 99,700 Men.*

	Numbers.	Ratio per 1,000 Strength.
Admitted into the African hospitals .....	121,138	—
Number of days under treatment in Africa ....	2,497,181	—
Discharged and sent to France.....	2,089	20·9
Deaths in the African hospitals .....	6,862	68·8
Killed in battle .....	116	1·1
Deaths in the hospitals of France .....	246	2·4
Pensioned .....	130	1·5
Invalided .....	267	2·6

*The Sanitary Measures still necessary for English Troops in India.*

My great object by the preceding observations has been to show “that the present death-rate for the whole of India,” instead of being 69 per 1,000, as assumed in the Sanitary Commissioners’ Report, has been, for many years past, little more than half this rate of death from ordinary and natural causes; inasmuch as the above-mentioned high rate is not simply the *mortality*, but includes other rates of *decrement* from the effective strength, as those of *invaliding*, and of *extraordinary war-service*, in climates and localities not Indian. The high death-rate given is that of Bengal European troops, rather than that of soldiers serving at Madras and Bombay. It was chiefly caused by extraordinary war-service of the former, during the Cabul massacre and Afghan war, and in the Burmese and China campaigns. A comparison, then, of the death-rate of troops, so employed out of India, with the death-rate of troops more comfortably housed, and adequately provided in the garrisons and stations of India, is manifestly a vague representation of Indian mortality, and must necessarily mislead as to what that rate is. At the commencement of the report the death-rate among the Company’s troops, including invalids, from 1800 to 1856, is stated as 69 per 1,000; but while recapitulating this statement, at p. 165, it is said:—

“*The annual death-rate for the whole of India has hitherto been about 69 per 1,000. The proposed European establishment is 73,000 men, and will, at the present rate of mortality, require 5,037 recruits per annum, to fill up the vacancies caused by death alone.*”

This rate of decrement, for both *mortality* and *invaliding*, might be certainly taken as a basis for correctly estimating the number of recruits hitherto necessary to fill up vacancies, but is not so for the mortality alone. Indeed, there is good reason to believe that 2,518, or half the Commissioners’ figures, would be sufficient to make good



the annual losses by death ; and are yet further susceptible of great reduction, by the introduction into India of improved sanitary appliances, adapted to climate, localities, and seasons, and with restraints on vice and intemperance. By the latest return of the British Army in India, exclusive of the late Company's troops, the death-rate had sunk to 35·3 per 1,000 ; and the invaliding, with deaths on the passage home, caused a further loss of 33·3 per 1,000 ; being altogether a decrement of the whole strength of 68·6 per 1,000. Invaliding, even at home, has hitherto caused a decrement of 32·3 per 1,000, so that this cause of loss in India is not greatly in excess.

While I have thus fairly stated my objections to the manner in which the Commissioners' Report has brought forward the death-rate of India as hitherto 69 per 1,000, I cannot help noticing the inconsistency of this assumption with the facts set forth in other tables, appended to the report ; Table IV of which shows that, for all India, 1847-56, it was only 51 per 1,000. This was seven years ago ; and from which time the ameliorations have been progressive.

In regard to other matters of the Report, the causes of sickness and mortality, and the means of preventing them, I entirely agree with the view taken by the Commissioners. 1st. That by far the larger proportion of the mortality and inefficiency of the Indian army has arisen from *endemic diseases*, and notably from fevers, diarrhœa, dysentery, cholera, and from diseases of the liver. 2nd. That the predisposition to these diseases is in part attributable to *malaria*, in conjunction with extremes of temperature, moisture, and variability. 3rd. But that there are other causes of a very active kind in India, connected with *stations, barracks, hospitals*, and the *habits* of the men, of the same nature as those which are known, in colder climates, to occasion attacks of these very diseases, from which the Indian army suffers so severely. In examining into these causes, we find, say they, that the stations generally have been selected without reference to health, and mainly from accidental circumstances, or for political and military reasons. Many of them are situated in low, damp, unhealthy positions, deficient in means of natural drainage, or on river banks close to unwholesome native cities or towns. Both barracks and hospitals are built at or close to the level of the ground, without any thorough draught between the floors and the ground. And the men, both in barrack-rooms and sick-wards, are exposed to damp and malaria from this cause, as well as from want of drainage. The ventilation is generally imperfect, and, from the arrangement of doors and windows, men are exposed to hurtful draughts. Many of the rooms are too high, and, as a consequence, there is much *surface overcrowding* both in barracks and hospitals, *although with large cubic space*.\*

\* " Report of the Commissioners, with Précis of Evidence," 8vo., pp. 160—162.



The greater or less *sickness and mortality* of all races in India are in proportion to the bad or good sanitary conditions, with moderate elevation of the site and localities where they live; and, in the present state of Indian drainage and agriculture, the Commissioners truly say, "that for all practical purposes, heat, moisture, and malaria "are constantly present, and everywhere influencing the sanitary "condition of the country, aided by filthiness of the stations, impurity "of the air in certain stagnant states of the atmosphere, by surface "overcrowding and want of ventilation in a barrack, by impurity of "the water supplied, and occasionally unsuitable diet."

No stronger evidence can be given in support of the truth of the above conclusions, that those are the chief causes of disease among European soldiers in India, than the statistical data which show, the rates of sickness and mortality, *from miasmatic diseases*, are greater or less in proportion to the *unimproved or improved* sanitary condition of places and localities. In the Bengal and North West presidencies, the most malarious districts of India, the mortality for Dum Dum and Calcutta is cited at 77 per 1,000; at Hazareebagh, 1,900 feet above the sea, during two years, 34 in 1,000; at Meerut, for nineteen years, 32 per 1,000; and Jullunder, 37 per 1,000.

The most frequent cause of epidemic outbreaks of Indian cholera and fever will, I believe, be found in certain stagnant conditions of the atmosphere, which favour the *accumulation of putrid animal matter* in the air of barracks and of stations, rendering it impure. When, in addition to this cause, bad food and bad water are allowed to contribute their share in impairing the nutrition of the system, and sapping the foundation of bodily strength among troops, the very worst features of sickness and mortality among them become manifest. These facts are prominently set forth in Dr. Hathway's Punjab Sanitary Report, lately published; where he judiciously recommends that all barracks should be provided with flues, and that the barrack air should be, at all times, tested by an instrument invented by Dr. Angus Smith.

The great defect, in most Indian barracks, is that the *superficial area* per bed by no means corresponds with the cubic contents, and is sure to be followed by all the disastrous effects of *surface overcrowding*, when larger numbers of European soldiers are assembled at stations, than can be conveniently accommodated in the barracks and hospitals.

European troops are exposed to other causes of disease than those before enumerated; such as *intemperance* and *syphilitic* diseases. And while both greatly increase the numbers on the sick list, they ultimately tend to swell the rates of *mortality* and *invaliding*. They are not, indeed, the more *immediate* and *chief causes* of Indian mortality, though contributing largely to it, and should never

be allowed to withdraw sanitary attention from those more general and prominent causes of sickness and mortality that require special measures of prevention.

With a view of removing all preventible causes of disease in India, the Commissioners' recommendations are embodied in thirty-nine suggestions, which are set down without any order as to the importance or priority of either. Having endeavoured to point out, in the preceding observations, that diseases of miasmatic origin are the main causes of the mortality, I may enumerate in abstract the more prominent of these suggestions, and in their relative order of importance.

*First.* As to *morbid causes*, associated with *season, localities*, and *barracks*, the Commissioners recommend—

That no recruit be sent to India under twenty-one years of age, nor until he has completed his drill at home; and that recruits be sent direct from home to India so as to land there early in November.

That the strategical points of the country which must be occupied, be now fixed, with special reference to reducing, as far as possible, the number of unhealthy stations to be occupied.

That hill stations, or stations on elevated ground, be provided; and that a third part of the force be there located in rotation.

That the period of service be only ten years in India.

And, That the sanitary regulations, now in force in England, be applied to India, along with the extension, to all Indian stations, of the present system of army statistics, and a code of sanitary regulations issued under authority.

In connection with this part of the subject there are also recommendations for remedying defective drainage, for supplying pure water, for erecting barracks and hospitals on raised basements, with air circulating under the floors; that the ventilation of barracks and hospitals be sufficiently secured independently of doors and windows; and that ablution and bath accommodation be provided for both these classes of buildings.

*Second.* In regard to *dietetic errors* and *clothing*, they recommend—

That no spirits be issued to troops on board ship, except on the recommendation of the medical officer in charge.

That the sale of spirits at canteens be discontinued, except in specific cases, on the recommendation of the medical officer, and only malt liquor or light wines allowed.

That the rations be modified to suit the season; and that flannel be introduced as under-clothing, and a better system of supplying boots introduced.

That the hospital diet tables, in use at home stations, be adopted in India, as far as practicable, and the hospitals supplied with properly-trained cooks.



*Third.* In regard to *exercise* and *recreation*, it is recommended—

That the means of instruction and recreation be extended to meet the requirements of each station. That covered sheds for exercise and gymnastics be provided, and that such gymnastic exercises be made a parade. That reading-rooms, with books and periodicals, be provided, and lighted at night. That only coffee, tea, and other non-intoxicating drinks be sold to the men at those rooms. And that workshops and soldiers' gardens be established, in connection with the stations, wherever practicable. And lastly, that soldiers of good character should be selected and educated for subordinate offices of the administrative departments.

*Fourthly.* That, with the most reasonable hope of *lessening intemperance*, and *diminishing the prevalence of syphilitic diseases*, the soldiers' condition in the way of occupation, instruction, and recreation be improved, as the most moral and rational means of leading men away from the canteen and vice. They also recommend that additional means of cleanliness should be provided for the men in all barrack lavatories; and that the *reorganization of repressive measures of police*, formerly adopted in the three presidencies, for lessening the scourge of syphilitic diseases, should be carried out, according to the necessities of each locality. Although police supervision of prostitution for the large cities of Europe has proved an entire failure, yet the condition of native society in India is such as to promise better and less embarrassing expectations of success.

*Fifthly.* That, in order to secure the gradual introduction of the above-mentioned sanitary improvements for barracks, hospitals, and stations, whether at the seats of Government, or throughout towns in proximity to military stations, "*Commissions of Public Health*" should be appointed, and that they should be so constituted as to represent the various elements of civil, military, engineering, medical, and sanitary knowledge.

Sir Hugh Rose, the Commander-in-Chief in India, by issuing orders, in July last, headed "Sanitary and Conservancy Regulations," has, in a great measure, anticipated the practical execution of this last recommendation for Bengal, where it was most needed, and will probably be followed by correspondingly-successful results.

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*A STATISTICAL ACCOUNT of the PARISH of BELLINGHAM, NORTHUMBERLAND. By WILLIAM HENRY CHARLTON, of Hesleyside.*

[Read before Section (F) of the British Association, at Newcastle, August, 1863.]

At the former meeting of this Association, at Newcastle, in 1838, I had the honour of reading a short paper on the statistics of my native parish of Bellingham,\* in the county of Northumberland. After the lapse of a quarter of a century, I deem myself fortunate to be able to recur to this subject, and to direct attention to the changes which, during that period, have taken place in this parish, and which are not only of some importance in themselves, but still more so as affording indications of tendencies which, I believe, exist more or less throughout many of the rural districts of Great Britain.

The parish of Bellingham is situated in the western part of the county of Northumberland, and is divided unequally by the valley of the North Tyne river. Its extent is 20,212 acres. The lowest land in the parish is about 400 feet, the highest about 1,300 feet above the level of the sea. A very large proportion of the parish is covered with heath or coarse grass, although the extensive works of drainage, which commenced about eighteen years since, have, in many parts, effected a great improvement in the quality of the pastures. The proportion of arable land is very small, much less than it was in 1838, the farmers having found it more profitable to lay down their land to grass. The climate, though rainy and sometimes severe, is remarkably healthy. The average annual fall of rain is about 45 inches, being almost double the amount of rainfall at the mouth of the Tyne, forty miles to the eastward. The highest temperature observed during the last twenty-five years was 83° Fahrenheit in the shade, the lowest 10° below Zero Fahrenheit. The mean temperature of the twenty-four hours of Christmas-day, 1860, was 0° Fahrenheit, the maximum temperature having been + 5°, the minimum - 5°. This day, it will be remembered, was remarkable throughout Great Britain for its intense cold.

The geology of the parish belongs to the lower portion of the great northern coalfield. The coal seams are, however, very inferior to those in the more eastern parts of the county, being only from 20 inches to 3 feet in thickness, and not generally of good quality.

\* The paper alluded to will be found in vol. i of the *Statistical Journal*, pp. 420 *et seq.*

There are four small coal pits now worked in the parish, which employ altogether not more than seven men and seven boys. The price of coal at the pit's mouth is 2*s.* 4*d.* per cart load, or 7*d.* per horse load. In 1838, I find the price recorded to have been 2*s.* per cart load, and 6*d.* per horse load. There is a small lead mine in the parish, but it has never been profitable. The parish has several excellent quarries of freestone, one or two of which are of fine quality. The limestone beds are thin, and generally lie deep. There are five limekilns in the parish, but they burn little or no lime at present, owing to the abundant supply of lime now brought by railway from the great limestone beds in the neighbourhood of Hexham. The price of lime brought to Bellingham by railway is 7*s.* per ton at the station. Ironstone is tolerably abundant. In the year 1841, a blast furnace was erected at Bellingham, by the Hareshaw Iron Company. The ironstone and limestone were procured in the immediate neighbourhood of the furnace, the coal was brought by a tramway from a pit about three miles off. The furnace was "blown out" in 1848, previous to which two other furnaces had been built, but were never in operation. Since 1848 the iron works have never been resumed, and as the whole of their "plant" was sold last year, there is little or no likelihood of their being so, particularly since the discovery and working of the great Cleveland ironfield, in Yorkshire. The ironstone of Bellingham is, however, of remarkably good quality, so much so, that it was largely used in the construction of the High Level Bridge at Newcastle in 1847.

The length of public roads in the parish is about 28 miles—in 1838 it was 16 or 17 miles. This great addition to the roads has been caused almost entirely by the enclosure of Hareshaw Common, containing between 8,000 and 9,000 acres, and wholly in the parish of Bellingham. Most of these roads are in tolerable condition, and are likely to be still further improved, as the parish has this year been included in a district under the new Highway Act. There is no turnpike road or pontage in the parish.

The population of the parish was by the census returns—

	Persons.
In 1821 .....	1,396
„ '31 .....	1,460
„ '41 .....	1,730
„ '51 .....	1,594
„ '61 .....	1,662

It will thus be seen that the population of the whole parish is nearly stationary, but it is well worthy of remark, that the parish is divided into six townships, one of which, the township of Belling-



ham, consists almost entirely of a small, but very ancient market town, and that in this township alone there has been a steady increase of population during the last twenty years, the numbers being—

	1841.	1851.	1861.	
	Persons.	Persons.	Persons.	
	672	770	866	

Of the other five townships composing the parish of Bellingham, four exhibited a large decrease in population, and only one a very slight increase, in 1861, as compared with 1841. The population of these five townships may be looked upon as completely agricultural.

In 1854 and 1859 Acts of Parliament were obtained for the construction of a railway, called the Border Counties Railway, from a point near Hexham, up the valley of the North Tyne, to Riccarton Junction, on the Border Union Railway between Hawick and Carlisle. The Border Counties Railway, which is nearly 42 miles in length, was opened throughout on the 1st of July, 1862, simultaneously with the Border Union Railway, thus placing the parish of Bellingham within an easy distance, in point of time, from Newcastle, Carlisle, Hawick, and Edinburgh. One of the first results of this facility of railway communication was the establishment last year of three annual fairs, or trysts, at Bellingham, namely, one in July, for the sale of wool; one in August, for the sale of lambs; one in October, for the sale of ewes and wethers. These fairs have been well supported since their establishment, and are likely to assume a considerable degree of importance.

There are five schools in the parish, three of which are situated in or near to Bellingham. The number of scholars is considerable for the population, and as education is generally valued, there are very few adults in the parish, who cannot, at least, read and write.

In 1831, the declared annual value of the parish of Bellingham was 6,435*l.* In 1863, the declared annual value of the same was 8,351*l.*, being an increase of nearly one-fourth. The average annual expenditure for the relief of the poor in the parish, during the three years ending 25th March, 1835, was 681*l.* The same for the three years ending 25th March, 1863, was 377*l.*, being a decrease of nearly one-half. This decrease has been more marked during the last year or two, in consequence of the important alterations lately made in the Law of Settlement and Removal, and perhaps still more so by the improved mode of assessment, which latter came into full operation in the autumn of last year.

I shall now proceed to answer a series of queries put forth



by the Statistical Society of London many years ago, and of which I availed myself in my statistical account of the parish, in 1838.

1. The number of acres in the parish is 20,212.

Owing to the want of an accurate survey, the quantity given by me in 1838, was "about 18,000."

2. The number of farms in the parish is 76. In 1838 it was 77.
3. The mode of letting the land is now generally upon *leases of from seven to fifteen years*. In 1838, the land was generally let *from year to year*.
4. The size of the several farms varies from 800 to 20 acres.
5. The soil is generally light, rather sandy in the valleys, black peat earth upon the hills.
6. The subsoil is partly cold clay and partly sand.
7. In 1838 the state of drainage was very bad, though in some few places it was beginning to improve. Since that date drainage has, for the last eighteen years been going on extensively, and with most beneficial results. There are in the parish two kilns for the manufacture of draining tiles.
8. The number of acres under the plough is 800. In 1838 it was 1,582. This important change may be traced to the high price of stock (*viz.*, cattle and sheep, particularly the latter), which has caused a great quantity of tillage land throughout the country to be laid down to grass within the last ten years.
10. The quantity of pasture land is about 6,500 acres.
11. Of meadow land, about 1,500 acres.
12. The number of acres of wood is 450.
13. The number of acres of heath, marsh, &c., is 11,550.
14. The average quantity of hay is 1,440 acres of natural grass, or meadow hay, and 60 of artificial grass.
15. Number of acres of wheat in 1863, 40; in 1838, 200.
16. The same of barley in 1863, 70; in 1838, 300.
17. The same of oats in 1863, 300; in 1838, 400.
18. Rye, beans, and peas, none.
19. Potatoes in 1863, 30 acres; in 1838, 38.
20. Number of acres under fallow in 1863, 200; 180 sown with turnips; 140 fed off with sheep on the ground, and 14 drawn off. In 1838, 400 acres fallow; 200 sown with turnips, of which 100 were fed off with sheep, and 100 drawn off.
21. The number of horses employed for agricultural purposes in 1863, 66; in 1838, 119.
22. Number of horses employed for other purposes in 1863, 56; in 1838, 17.

23. Number of grazing cattle, exclusive of milch cows, in 1863, 660; in 1838, 50.
24. Number of milch cows in 1863, 220; in 1838, 460.
25. Number of calves bred in 1863, 220; of which 160 reared, and 60 made fat for meat; in 1838, 410 for rearing, 50 for meat.
26. Number of Leicester sheep in 1863, 110; in 1838, 22.
26. Number of short-woolled sheep, being Cheviot, black-faced, and a cross between the black-faced and Leicester, in 1863, 9,800; in 1838, 5,080.
27. Lambs of all descriptions bred in the year 1863, 5,000; about 400 fattened and 4,600 for keeping; in 1838, 1,150; of which 300 fattened, and 850 for keeping.
28. Number of sheep shorn in 1863, 8,000; in 1838, 4,800.
29. Quantity of cheese (old milk) made in 1863, 60 cheeses; in 1838, 1,120 cheeses.
30. Butter made in the year, 300 firkins, or about 17,000 lbs. it being mostly sold in lbs.

The usual rate of wages daily for common labourers, in summer and winter respectively, is 3*s.* in summer and 2*s.* 6*d.* in winter. In 1838 it was 2*s.* 6*d.* and 2*s.* Women employed as day-labourers are paid at the rate of 1*s.* per day, except in harvest, when they have at least 2*s.* In 1838, women had from 9*d.* to 10*d.* per day for ordinary work. Children earn 6*d.* or 7*d.* per day for ordinary work, and 1*s.* in harvest. A male farm-servant, or hind, is usually hired by the year, and receives now 16*s.* per week. In 1838, he received from 12*s.* to 13*s.* Women farm-servants are hired by the half-year, and receive now 8*l.* for the summer half and 4*l.* for the winter half-year. The hiring usually takes place in May and November. In 1838, women farm-servants received about 6*l.* 10*s.* for the summer, and 3*l.* for the winter half-year. Shepherds now receive from 16*s.* to 17*s.* per week, money wages. In 1838, they were always paid *in kind*, having a portion of the stock set apart for their own use and profit; often forty or fifty sheep, and a cow or two.

The rental of many farms in the parish has risen considerably during the last twenty-five years, owing principally to the rise in the prices of sheep and of wool. The highest rental of any farm in the parish of Bellingham is at present 440*l.* per annum, the farm being partly pastoral and partly agricultural.

Since 1838 there has also been a great improvement, not only in the farmhouses and their outbuildings, but in the cottages of the labouring classes. Gardens have sprung up everywhere, and many of the farmers and labourers take an interest in the cultivation of flowers. The cheapness of fuel is also a most important element as regards both the comfort and health of the labourers. A good fire

of coal, which is kept up all the year round, gives both warmth and ventilation to the cottages.

Before concluding this paper, I would again direct attention to the *character* of the changes which the lapse of twenty-five years has brought about in this parish, as in many others of the North of England.

1. The diminution of *arable*, and the increase of *grass land*.
2. The increase in the quantity of stock fed upon such land.
3. The improvements which drainage has effected in such land.
4. The increased annual value and higher rental of the land.
5. The increase of the wages of farm-servants and day-labourers.
6. The diminution of the poor rate.
7. The stationary, or rather retrograde, state (as regards numbers) of the *rural or agricultural* population, and the increase of the *town* population, even where there are no manufactures to stimulate it.

Whatever may be the ultimate effect of these changes, it is certain that they have hitherto worked beneficially for all classes, and that, generally speaking, the inhabitants of the parish of Bellingham, and of this part of Northumberland, have never been so well off as they are at the present time. May those who shall be living twenty-five years hence, be able to give as satisfactory a report!

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REPORTS *of the* OFFICIAL DELEGATES *from* ENGLAND *at the*  
MEETING *of the* INTERNATIONAL STATISTICAL CONGRESS,  
BERLIN, *September, 1863.\**

1. REPORT OF DR. WILLIAM FARR, F.R.S., F.S.S.

GENTLEMEN,—In fixing on Berlin as the next place of meeting for the Statistical Congress, after learning that it would be agreeable to the Government of His Majesty the King of Prussia, the English Organization Commission carried out the expressed wish of the official delegates of the Governments of Europe, assembled in London. The Congress had met in Brussels, in Paris, in Vienna, in London; and it was an agreeable office to us to have the honour of placing it under the friendly protection which we knew it would enjoy in Berlin, the capital of a kingdom in which all the sciences have been cultivated with signal success. The expectations which were entertained by the commission and by the delegates, of whom I have the happiness to see many around me, will, I see—despite of some untoward circumstances—be justified by the event.

The progress of statistics in England since the last meeting has been on the whole satisfactory; in some instances success has been only partial; in others we have altogether failed to carry out measures good in themselves, and sanctioned by the Congress.

The several departments of the Government, and some royal commissions, have displayed great activity, and have not only published tabulated facts of great importance, but have accompanied them by explanations and deductions of practical value; various papers, and reports too, by members of scientific societies and others, have also appeared. It is in this direction that success has been achieved. For the division of labour, on the principle laid down by Descartes, has been carried out to the greatest extent in England; and particular fields have been well cultivated. But it is in the synthesis of our work that we have hitherto failed. We have no central statistical board, and there is a want of co-ordination in our publications.

This was pointed out by the Prince President of the Congress of London in his luminous address, and had he lived, I believe, it might now have been remedied.

Our principal statistical operation since the last Congress has

\* The report of Mr. Valpy, of the Board of Trade, one of the Delegates, will be published in a future number.—ED. S. J.

been the census; upon which the Registrar-General, my colleague Mr. Hammick, and myself, in England; Mr. Dundas and Dr. Stark, in Scotland; Mr. Donnelly and Mr. Wilde, in Ireland, have been incessantly engaged. As recommended by the last Congress, the census was taken on one day (8th April, 1861), by paid enumerators; and it was *by names* inscribed on schedules (bulletins), distinguishing sex, age, conjugal condition, relation to head of family, profession, birth-place, in fact all the particulars which the section declared to be indispensable. Our census is decennial. The population was 29,321,288. The language spoken, the religion, and the ability to read and write were distinguished in the census of Ireland; not in that of England or of Scotland.

The great facts respecting the population are these:—the population of England, Scotland, and Ireland inclusive has increased by 1,575,339; the population of England proper and of Scotland has increased, and the population of Ireland has decreased by emigration. The industry and productive power of the nation have increased faster than the population; and as the towns are the seats of industry, the increase of population has been chiefly in the towns. In England, exclusive of Scotland and Ireland, the town population amounted to 10,960,998, the country population to 9,000,000; for the cultivation of the soil—by improved methods and implements—has not apparently demanded more hands than were employed ten years ago. The registered emigrants from our shores of English origin, during the ten years 1851-60, were 2,054,823, exclusive of 194,532 foreigners; so nearly 7 per cent. left England to settle in other lands, where they are laying the foundations of new communities. The emigration was at its maximum in the year 1852, and was at the rate of 1,000 a-day (368,764); but after 1855 the emigration declined, and was represented by 121,214 souls in 1862.

Emigration is effected at a certain expense, and is, in fact, a transfer of living capital from one land to another. How it has been effected in Ireland, it may be worth while to mention. For some years Ireland evidently had contained more people than its industry and skill could sustain. One of the first of our economists said, that to transport the people at the public expense to the colonies, would be a violation of principle; and as the people had themselves no capital, nothing could be done. Well, the people of Ireland themselves found out the remedy. The young men sailed across the Atlantic in the cheapest vessels; they laboured with success, and saved a portion of the earnings, which they transmitted home—with that family affection which characterizes the Celtic race—and carried off their fathers, mothers, brothers, and sisters to places where employment and subsistence were plentiful.

I beg leave to call the especial attention of the members of the



Congress to our tables, which distinguish the number and age of persons in each separate occupation. Those facts lie at the foundation of statistical science, and hitherto they have been given in no other country.

We have constructed a new life table in England, and have found out methods by which the principal series for determining the value of annuities on single and joint lives can be calculated, and stereoglyphed by the beautiful machine, invented by the Scheutzes, countrymen of our colleague, Dr. Berg. The volume will be shortly published.

The Registrar-General has undertaken from the censuses, and from the registered deaths of ten years, 1851-60, to calculate the mortality, at thirteen ages, of the males and females living in the 631 districts into which England is divided. The causes of death will at the same time be shown; and it is expected that this simple and decisive demonstration of the causes of death, and of its attendant sickness, will lead to immense improvements in the public health. The people themselves will demand and pay for the means of healthy life; pure water, pure air, clean streets, and clean dwellings; containing none of the matter which is everywhere so intolerably offensive in houses, and is a source of fertility in fields.

The British army consisted in 1861 of 227,005 officers and men, and 82,156 of them belonged to regiments in India. Since the acquisition of that part of the empire, the losses of our troops in men have been at the rate of 69 in 1,000 annually; the mortality of men of the same age at home being 9 in 1,000. This is the result of the great inquiry which was instituted under Lord Herbert into the health of our army in India, and has been continued by a commission over which Lord Stanley has ably presided. Our first impression was, that the excessive mortality was due to the tropical climate of India; and it is true that the inundated and undrained valleys of the Ganges are the prolific sources of malaria in its intensest forms; but, at some of the stations in the hottest regions the mortality of the soldiers did not exceed 20 in 1,000; the mortality of the officers, subject to malaria as well as the men, was at the rate of 38 in 1,000, and the mortality of civilians in the same climate was 20 in 1,000. Again, the diseases were dysentery and liver disease, diarrhœa, cholera, and paroxysmal fevers; precisely the diseases which were as fatal in London during the seventeenth century, as they are now in India. Bad water, spirits, the want of work, both of muscle, bone, and brain, the want of land-drainage and culture; the same dirt which annoys our senses in London, in Berlin, and in all our towns, as well as other obvious causes, have destroyed the men's lives. We expect that the mortality in India will be reduced to the normal standard, by placing the troops on high lands, and supplying

them with the necessary means of healthy existence. Each man we lose is worth 250*l.*, and hence the economy of hygienic measures, which is further apparent, when we consider the efficiency in the field of armies of healthy troops. The Secretary of State for India, Sir Charles Wood, has directed the principal measures which the commission recommended to be carried out; and among the recommendations is this:—"That a system of registering deaths and the causes of death be established in the large cities of India, and be gradually extended, so as to determine the effects of local causes on the mortality of the native, as well as of the European population; the results to be tabulated and published annually by the commissions." This will extend the domain of the Congress to more than 100,000,000 Indians.

The people of India have a great aptitude for figures; they are partly the founders of our science, for it is to them we owe our system of notation. We must repay them by endowing them with our European system of statistics, and all the modern instruments of science, health, and civilization. I place upon the table the report of the commission, and a valuable paper by Miss Nightingale, to whom the army of England is so deeply indebted.

I may add here, that in Ireland one of the most flagrant defects of our home statistics has been recently remedied, by a measure which Sir Robert Peel introduced; the births and deaths, and causes of death are there to be duly registered. Singularly enough, the marriages of the Catholics of Ireland will remain unregistered; and this great protection of the sanctities of life does not exist.

The agricultural statistics of Ireland are still ably conducted by Mr. Donnelly, the Registrar-General of Ireland; the amount of land under different kinds of culture is returned every year, and the produce is estimated. This plan which the Congress adopted and recommended in London has not, however, yet been carried out in England or in Scotland. Of the utility to the world of this fundamental determination of the area of cultivated land, and of the amount and value of the productions of the soil, I need not speak in this assembly. And Her Majesty's Government is, I believe, quite willing to accept any measure for the advancement of the science of agriculture, such as this, which the enlightened men at the head of that great interest demand. Something will probably be proposed next session for carrying out one of the weightiest decisions of the Congress.

Mineral statistics have been continued and extended, under the able superintendence of Mr. Hunt.

Prices have been investigated by Mr. Jevons, formerly of the Sydney Royal Mint, who, by the investigation of the prices of 118 commodities, shows that there has been a depreciation of the



value both of gold and silver. There is novelty in the methods which Mr. Jevons has employed, as well as great interest in his facts, collected from the best authorities. Professor Rogers, of Oxford, has commenced an elaborate inquiry into the history of prices. The first portion of the inquiry will be found in the *Statistical Journal*.

These are the principal subjects which occupied the last Congress, with the exception of weights and measures, and decimal money. Mr. Samuel Brown and Dr. Levi will report to you the proceedings of the commission up to the present day.

Mr. Valpy, of the Board of Trade, will report the proceedings of his department in statistics; and Mr. Hammick will report on a subject in which, I know, you will feel an interest.

Gentlemen, I am authorized on the part of Her Majesty's Minister of Public Works, who was one of our Vice-Presidents (Mr. Milner Gibson being the other), to express his regret that he is unable to attend this meeting in Berlin, and at the same time to express his confidence that your labours, under the auspices of the Government of His Majesty the King of Prussia, will be crowned with success; a confidence which the presence of so many practical men, the able arrangements of Dr. Engel, and the presidency of your Excellency (Count Eulenberg), justify; and which is placed beyond doubt by the discriminating appreciation which, yesterday, His Majesty the King so graciously expressed, followed as it is to-day by the presence in this assembly of His Royal Highness the Crown Prince of Prussia, who thus shows the Congress the same favour as that Prince, with whom he is so intimately allied. (Applause.)

On the motion of Dr. Engel, seconded by M. Legoyt, the report on English statistics was ordered to be printed in the "Prussian Gazette."

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## 2. STATEMENT BY MR. HAMMICK, F.S.S.

Gentlemen,—Having been requested to furnish the Congress with some information concerning the measures which we have adopted in England with a view to mitigate the distress unhappily still prevailing in the cotton manufacturing districts, I have much pleasure in presenting to your notice a few facts which are not exclusively of domestic interest.

You are aware that by the law of England every poor and destitute person is entitled to relief from a public fund,—in food, clothing, lodging, and medical attendance, according to his necessity—no question being raised as to the country, sex, age, character, or

conduct of the destitute person. The fund is a local contribution, called the "poor rate;" it is raised from a limited district (the *parish*), and is administered by unpaid local functionaries and their paid officers, according to rules laid down by the Poor Law Board, which is the department of Government charged with the general administration of the poor law. The parishes are, for the most part, grouped into "poor law unions," and in each, or nearly each, of the 655 unions in England and Wales, there is at least one workhouse\* where entire relief is given; relief is also given out of the workhouse, but this is usually of a partial and temporary character.

During the ten years, 1851-60, the total amount expended on the relief of the poor in Great Britain and Ireland was 67,350,000*l.* sterling, equivalent to an annual charge of 4*s.* 9½*d.* per head on the population. In England and Wales, the sum expended in the same period amounted to 55,000,000*l.* sterling, being at the rate of 5*s.* 9½*d.* per head on the population. These figures refer to ordinary times, but since the outbreak of the civil war in America, an entirely exceptional state of things has prevailed. By the failure of the cotton supply consequent upon that event, nearly a million of persons, including the families of the operatives, were suddenly, through no fault of theirs, deprived of their usual means of support. The whole nation was moved with sympathy, and united in the effort to diminish the privations of these poor people; while the efficiency of the system of poor law relief was tested in the severest manner. Although the power of levying rates for the relief of the poor may be extended to the enforcement of a contribution equal to the full annual value of the property assessed, the extreme application of this power would have been ruinous in its consequences to the distressed districts. The public, therefore, at once came forward with liberal voluntary subscriptions, and not only did the British colonies, but even some foreign countries join in the good work. It is estimated that the contributions in money and clothing have exceeded one million sterling. The manufacturers, besides being themselves heavy sufferers, and bearing the burden of greatly increased local taxation, have rendered the most generous aid in preventing the workpeople, whom they could no longer employ, from feeling the extremity of want.

The first legislative measure adopted to meet this emergency provided for an extension of the area within which a higher contribution to the poor rate might be levied,—*the whole* of the counties within which the distressed districts are situated being required, in case of need, to contribute in the same high proportion as the districts themselves. In these counties—Cheshire and Lancashire

\* There are 700 workhouses in operation; but a few unions, principally in Wales, have no workhouse.



—no less than 421,400 persons were in receipt of relief on the 1st January in the present year, being 203,500 persons, or 97 per cent. more than on 1st January, 1862,—an increase of distress quite sufficient to justify a departure from the ordinary methods of raising the amount required for the relief of the poor.

But a measure of greater importance, and one calculated not only to meet the present emergency, but to benefit every class of society within the distressed districts, is the Act passed in the last session of Parliament, empowering the Government to make advances to the extent of 1,500,000*l.* sterling, to enable the local authorities in the cotton manufacturing towns to provide employment for the distressed workpeople, by the execution of works of public utility and sanitary improvement. The money is to be advanced on the security of the local rates, and to bear interest at the rate of  $3\frac{1}{2}$  per cent., or about  $\frac{1}{4}$  per cent. higher than the interest in the public funds; the principal and interest to be repaid by annual instalments within a period not exceeding thirty years. Several towns have already applied for loans amounting, in the aggregate, to 800,000*l.*, and during the coming winter it is expected that more than one million sterling will be absorbed in various public works. The operatives will be employed, of course with a due proportion of skilled workmen, in constructing sewers, cleansing and covering up open drains and ditches, making new public roads, deepening and cleansing rivers, constructing reservoirs and other works for improving water supply, forming new parks and recreation grounds—in short, in any description of work of permanent public benefit. In every case the local authorities will devise and carry out the execution of the works, the Government neither dictating nor controlling the expenditure, nor in any way interfering further than to ensure a useful outlay of the money. The Congress, therefore, will be pleased not to form the idea that the British Government is engaged in establishing national workshops, or employing engineers to devise works merely for the sake of affording employment to the operatives; it simply helps the local authorities to help themselves by means of readily-applied laws, and by loans of money at a low rate of interest not involving loss to the public at large.

I rejoice to hear that little distress has been felt in Prussia from the causes which have so painfully affected large numbers of our industrial population in England. In France and Belgium, as I regret to learn from our honourable colleagues from those countries, much distress has existed; but the special measures which have been adopted by the respective Governments have tended, in some degree, to mitigate its effects. Where, however, the law makes no certain provision for the poor and destitute, the people must of necessity endure great privations during the depression or inter-

ruption of any important manufacture. In England, notwithstanding the large number of operatives thrown out of employment, and the severe pressure upon those charged with the administration of the poor rates, no case has been brought under the notice of the authorities of a failure to supply all destitute persons with relief. The working classes have conducted themselves with admirable patience under their privations; and the winter once tided over, it is confidently believed that a supply of cotton will be furnished, chiefly from new sources, which will again call into activity this important branch of our national industry.

I should not omit to mention that ample statistics relating to the fluctuations in the number of persons relieved, and to other matters of importance connected with the crisis, have been published at short intervals by the Poor Law Board, under the able superintendence of Mr. F. Purdy, and that the information thus imparted has been of great interest to the country at large. (Applause.)

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*On the PROGRESS of OFFICIAL STATISTICS in the NETHERLANDS (1858-63);— with a NEW DUTCH LIFE TABLE by DR. VON BAUMHAUER; contributed by FREDERICK HENDRIKS, F.S.S.*

[Read before the Statistical Society, 17th November, 1863.]

IN the Continental States, as indeed in England, various views are taken of the comparative advantage, or the contrary, of centralization in official statistics. With some, centralization under a single commissioner or commission, is most in vogue; to others, it seems preferable to allot to each ministry or government a separate statistical office, allowing the departments to report in their own way, without requiring one general model for the returns, or a reference to one common statistical centre or general commission.

The Netherlands at first adopted the centralized system. This has, however, been suspended by the departmental system. The late Professor Van Ackersdyck, the eminent jurist and statistician who represented the Netherlands at the London meeting (1861) of the International Statistical Congress, and who is recollected by many of us as one of the most earnest and painstaking members at that meeting, may be said to have been the introducer into the Netherlands of the centralized statistical system. The central commission was instituted 5th November, 1858. It held monthly meetings from March, 1859, to December, 1861. Van Ackersdyck was its president during 1859 and 1860, and on his resignation in December, 1860, a successor to the cares of his difficult task was sought for without success, and the departmental system was resorted to. The central commission printed two reports, one of an official character, containing a statistical review for the years 1859 and 1860, and the other a review printed at the expense of the members—of their labours during 1861, at the close of which year, the second Chamber of the States General threw out the budget of the commission for 1862. It is very likely that the budget, or estimate of expense, of such centralized commissions will, in several countries, as it has been in the Netherlands, be found the main cause of their dissolution. On the other hand, in the departmental system, the expense, divided amongst several sections of the administration, although greater in the aggregate, is less patent, less subject to the attacks of over zealous financial reformers, and thus has less chance of adverse criticism.

Dr. von Baumhauer\* attaches great importance to the labours of private individuals in elaborating and scientifically criticizing the official returns. Functions such as these, frequently exercised by members of the Statistical Society of London, are in Holland taken up by a corporation of about one hundred members, which has its place of meeting and its library at Amsterdam. Its direction consists of seven members, and there are several general meetings each year. The statutes of this corporation were approved by royal decree, 4th July, 1862. Such transactions or papers as are intended for the public eye, appear in the pages of the "Political and Economical Annual," published since 1849, at Amsterdam, under the chief editorship of the eminent Professor De Bosch Kemper.

In the Dutch East Indies it is intended to establish statistical departments. The Governor-General, Baron Sloet van de Beele, is known as a statistician, having published an esteemed work on the statistics of Guelderland. Two Dutch functionaries, one of whom was chief of the provincial bureau of statistics in Guelderland, were to have gone out to these colonies last month.

Dr. von Baumhauer has furnished us with a notice of the statistical works published by the departments of the Netherlands Government during the last three years. The following is an abstract:—

*Ministry of Finances.*—1. "Reports on Trade and External Navigation for 1859-60-61."

2. "Annual Budgets of Expenses and Receipts, with detailed Reports upon Financial Administration."

*Ministry of Justice.*—1. "Statistics of Criminal and Civil Justice."

2. "Prison Statistics."

3. "Police Statistics."

*Ministry of Colonies.*—1. "Reports upon the Condition and Administration of the Colonies, 1858-59-60."

2. "An Annual Report upon Trade and External Navigation" appears at Java and Madura, the last for 1861; and upon "Education," the last for 1860.

*Ministry of the Interior.*—1. "Statistical Annual" (*Statistisch Jaarboek*), tenth and eleventh years, in one volume, containing population statistics for 1859 and 1860, and an abstract of the last decennial census of 31st December, 1859.

2. "Statistics of Education: Higher, Middle, and Primary."

3. "Reports upon Beneficent Institutions." It appears that annual reports upon education and upon beneficent institutions have been published from 1816.

\* *Aperçu des Travaux Statistiques dans le Royaume des Pays Bas.* Report to the Berlin Meeting of the International Statistical Congress, September, 1863.



4. "Reports upon Lunatic Asylums." Annual reports have appeared from 1844.

5. "Agricultural Statistics for 1859 and 1860." Published annually from 1851.

6. "Statistics of Sea Fisheries for 1859-60-61." Published annually from 1854.

7. "Reports upon Public Works for 1859-60-61." Published annually from 1853.

8. "Reports upon Electric Telegraphs for 1859-60." Published from 1853.

Each of the eleven provinces of the Netherlands has its statistical office, which presents an annual report to the provincial council. The provinces have published their reports separately since 1840.

A commission for the statistical description of the province of Groningen was instituted in 1854, having for its president the royal commissioner Van Royén, and for its secretary, Dr. L. Ali Cohen. The commission possesses a library and archives, and divides its labours into four sections: (1) geographical and topographical description; (2) population and cognate subjects; (3) social institutions; (4) industry and wealth. Two volumes of transactions have already been published, and the third is in progress, under the title of "Documents upon the Present Condition of the Province of Groningen." They are said to contain very interesting information.

Dr. von Baumhauer has recently calculated for the Dutch Government two tables of mortality, arranged in the usual form of numbers living and dying, equation of life, and expectation of life. Each of the two periods, he observes, for which these tables have been constructed, viz., the duo-decennial (1840-51), and the decennial (1840-51), has had its favourable and its disastrous years. Amongst the former, he reckons the quinquennial periods, 1840-45 and 1850-54, particularly the two years 1850-51; amongst the latter, 1846 and 1847, years of scarcity; 1848, and especially 1849, ravages of Asiatic cholera; 1855, great mortality in childhood from measles, and in adult age from catarrhal fever, typhus, and cholera; 1857, especially great mortality amongst children; 1858 and 1859 particularly, small pox, malignant fevers; and 1859, cholera again.

The results given in the following table are an abstract of the results as regards average expectation of life; to which we have added corresponding results for England and Sweden. It will be seen that the mortality in the Netherlands compares unfavourably with that experienced in England and Sweden. It may be that some of the greatest triumphs of sanitary improvement in diminishing the death-rate, are still reserved to stimulate the endeavours of statesmen and philanthropists in a country like the Netherlands, where

stern battles against natural disadvantages have been the rule instead of the exception.

Whilst these remarks are assumed to be applicable to the mass of the community, the general population, there is reason to believe that in its select classes, such for instance as annuitants and members of provident institutions, the average expectation of life and longevity, is not materially different from that experienced by the like classes in other countries. Modern statistics of the mortality of what is technically called “select life,” as observed in the Netherlands, would be a desirable addition to the stock of knowledge on these matters. The old observations upon the lives of annuitants and tontine nominees, investigated by de Witt and Kersseboom, showed the value of life in Holland to be quite equal to the corresponding value afterwards ascertained in France and England as prevailing in like classes.

Age.	Netherlands.				Sweden.		England.*	
	Average Expectation of Life.				Average Expectation of Life.		Average Expectation of Life.	
	Males.		Females.		1841-55.		1841.	1857.
	1840-51.	1850-59.	1840-51.	1850-59.	Males.	Females.	Males.	Females.
0 ...	33·83	34·12	36·63	36·43	41·28	45·60	40·36	42·04
1 ...	43·46	45·67	44·92	45·27	48·29	51·95	46·95	47·36
2 ....	46·30	47·54	47·82	48·12	49·27	52·92	49·20	49·38
3 ....	47·57	48·59	49·12	49·16	49·68	53·26	50·03	50·25
4 ....	47·83	48·82	49·41	49·39	49·68	53·22	50·28	50·56
5 ....	47·96	48·68	49·24	49·23	49·40	52·96	50·21	50·53
10 ....	44·88	45·91	46·56	46·51	46·48	49·99	47·47	47·86
20 ....	37·36	38·26	39·21	39·17	38·55	42·12	39·99	40·65
30 ....	31·21	31·75	32·48	32·40	31·22	34·45	33·21	34·06
40 ....	24·56	24·96	26·27	26·36	24·33	27·21	26·46	27·50
50 ....	18·48	18·46	19·84	19·73	18·02	20·11	19·87	20·84
60 ....	12·64	12·78	13·44	13·31	12·31	13·48	13·60	14·49
70 ....	7·72	7·91	8·07	8·07	7·40	8·04	8·55	9·12
80 ....	4·52	4·36	4·64	4·47	3·88	4·32	4·97	5·34
90 ....	2·68	2·36	2·81	2·67	2·42	2·76	2·80	3·09
95 ....	2·40	2·51	2·67	2·62	2·00	2·58	2·11	2·38
100 ....	1·00	1·00	1·00	1·00	—	1·00	—	1·86

\* From Dr. Farr’s life tables ; the male lives published in the twelfth, and the female lives in the twentieth “ Annual Report of the Registrar-General.”



*The INDUSTRIAL PROGRESS of VICTORIA as connected with its GOLD MINING. By H. S. CHAPMAN, of Melbourne.*

[Read before the Statistical Society, 17th November, 1863.]

I PROPOSE, in the following paper, to exhibit the present condition of the colony of Victoria. The year just ended (1862) has been, in many respects, eventful, considered in relation to the present condition and future prospects of the colony. On the one hand, we have a marked development of our internal resources; on the other, the rival gold fields of New South Wales and New Zealand have attracted and are still drawing off a considerable number of our people. In six years the production of gold has fallen off nearly one-half. It is the effect of these and other changes which I propose to trace. I may remark, at the outset, that all the colonies are subject to great fluctuations. Generally their condition is progressive; but their progress, always rapid, often remarkably so, is subject to great checks, and at times the superficial observer, and those who are constitutionally desponding, are apt to conclude that their prosperity has come to an end. I know of no case in which this is true of any colony. The abundance of land, in proportion to capital and labour, imparts to colonies a remarkable vitality; and where, as in the case of Victoria, they have one or more especial sources of wealth, periods of depression are always temporary, and if the times of comparison are so chosen as to include fluctuations from high prices to low prices—from prosperity to depression, with their reactions—the result of such comparisons invariably exhibits a great balance of progress in population, wealth, and social improvements.

Not only is Victoria no exception to this rule, but it exhibits it, in what I shall venture to call, a remarkable degree. In 1835, one enterprising family, the Messrs. Henty, established themselves at Portland Bay, in the western district. In the following year, Batman's party settled on the site of Melbourne. Soon after, Fawcner's party ascended the Yarra, and first put the plough into the soil on the south side of the river. In 1837, a magistrate was sent from Sydney, and Government was organized. In September, 1838, the population of the infant settlement was 3,511. Its sole dependence was then on its grass. Pastoral pursuits were alone attended to, and at the time the above humble figure of population was ascertained, the infant colony owned 310,946 sheep, 13,272 head of cattle, and 524 horses. This was its "germ of future increase"

until 1851—the commencement of the golden era. In that year, the wool-created colony, only fourteen years old, contained (2nd March) 77,345 people, who owned 6,032,783 sheep, 378,806 head of cattle, and 21,219 horses; and a city, also wool-created, had grown up, containing 25,000 souls. It was in that year (1st July) that the district of Port Philip separated from New South Wales, was created into a colony under the name of Victoria, with a single Legislative Chamber, consisting of two-thirds elected members and one-third nominees of the Crown—a legislature efficient, perhaps, for the then circumstances of the colony, but soon to be rendered effete by the remarkable revolution in its prospects, which took place during that very year. It was a few months before the first council met, that gold was discovered. In August, 18 ozs. were brought into Melbourne. In December, the quantity for the month had swelled to 140,000 ozs., which was nearly equal to a year's production of New South Wales, where the discovery was about four months earlier. Many of your readers must recollect the impression produced in London by the arrival of the "Melbourne," the first gold ship from the colony, with its 54,000 ozs. followed within a month by four other ships, conveying together 126,000 ounces more. The result is, that in 1862, *i.e.*, in eleven years, our population has increased to 550,000, our exports to the extent of 12,000,000*l.*, and imports to the same amount, and the city and suburbs of Melbourne have a population of 138,000. We have 220 miles of railway in operation, with other marks of prosperity, to which I shall presently have occasion to refer; whilst the aggregate population of these colonies, including New Zealand, increased from about 400,000 to more than 1,250,000.

The most striking feature in the commercial condition of Victoria, during the last few years, is the annual decrease in the production of gold, and the substitution of other enterprises. It will be seen hereafter, that I do not regard this as at all detrimental to our future prosperity, or injurious to our present condition, and I, therefore, see no good reason why the "Argus" should have lately ceased to compare the quantity of the current week, month, and quarter with that of former years. I shall not shrink from such comparisons, though they may *apparently* tell against the colony; and I think I shall be able to show that they do not justify any inference that we are in a condition otherwise than progressive; whilst I may use the true state of facts as a warning to your commercial readers as to their future "operations" with the colony. The export of gold reached its culminating point in 1856, when it was nearly three millions of ounces, and, as the quality is above the Mint standard, the value was about 12,000,000*l.* I may mention here that the value of pure gold is an insignificant fraction under 4*l.* 5*s.* per oz., and some of our gold has sold for 4*l.* 2*s.* 6*d.* Some years ago, I saw some gold which, on a



very scientific examination, was pronounced to be chemically pure. It was from Ballaarat. In order to show the actual decrease since 1856, I take the following table from the official returns of Mr. Archer, the Registrar-General, a very trustworthy authority; and here, let me remark, that this very gold of ours has enabled us to *buy* (and I purposely put it in this vulgar but sound light) appropriate talent in every department of our Government. His statement, except the last year, which I take from the “Argus,” scarcely less trustworthy, is as follows:—

	ozs.
1856 .....	2,985,696
'57 .....	2,761,528
'58 .....	2,528,188
'59 .....	2,280,676
'60 .....	2,156,661
'61 .....	2,072,359
'62 .....	1,711,508

There is every reason to believe that this decrease is still going on. The quantity removed by the escorts, during the thirteen weeks ending 13th March, was 359,260 ozs., which would give only 1,437,040 for the year. The first three months, however, are usually the lowest in the year. It is the dry season of a dry country, and this has been the driest of all the dry seasons for years past. When I say this is a dry country, I must explain myself. More rain, *in inches*, falls here than in England, but it descends in torrents, and rushes to the sea in floods, and when we want it, it is all gone. We have not yet adopted means to keep it until we want it, but we are beginning to think of that too. To show that the supply of the first thirteen weeks affords no criterion for the whole year, last year we had 389,255 ozs., and the year before 471,947 ozs., both considerably less than one-fourth of the production of the year. Still we cannot expect that the production of 1863 will equal that of 1862; probably it will be somewhere between 1,500,000 and 1,600,000 ozs.

Before I proceed to show in what manner other productions have replaced, and indeed more than replaced, every ounce of gold that has ceased to be produced; and, consequently, that our general resources have continued to be, and still are, progressing, it may be as well to consider the production of gold generally in Australia from the English point of view. If an undiminished quantity of gold from the southern hemisphere continue to pour into England, keeping up an unimpaired demand for British manufactures, it is of no importance to her and to her trade, whether that gold is derived from this or that part of Australia or from New Zealand. And, in point of fact, this is the case; that while Victoria has produced and shipped quantities decreasing from year to year since 1856, there has been a corres-

ponding, or nearly a corresponding, increase from other fields. Let us begin with New South Wales. That colony preceded Victoria in the discovery of gold by about four months, but the wonderful richness of our first discovered gold fields of Mount Alexander and Ballaarat, and soon after of Bendigo, drew off the miners of New South Wales and effectually checked gold mining in that colony. The following is a complete return of the quantities produced from 1851 to 1862:—

	ozs.		ozs.
1851 .....	161,880	1857 .....	148,126
'52 .....	199,500	'58 .....	255,585
'53 .....	173,960	'59 .....	293,574
'54 .....	148,900	'60 .....	355,328
'55 .....	107,250	'61 .....	403,139
'56 .....	134,950	'62 .....	584,219

The average of the first seven years is 153,510 ozs. per annum, or in round numbers, about 600,000*l.* value per annum ; the average of the first ten years is under 800,000*l.* per annum ; whereas the value of the gold produced in 1862, is 2,336,670*l.*; and this year it will, in all probability, reach or exceed 2,500,000*l.* This increase is attributable to the rapid development of the gold fields on the River Lachlan. This appears from the following statement of the sources of supply in 1861 and 1862:—

	1861.	1862.
	ozs.	ozs.
Western (Lachlan) ....	131,881	326,672
Southern .....	235,604	231,207
Northern .....	35,654	26,640
Total .....	403,139	584,519

New Zealand, however, as a gold-producing country, is fast eclipsing New South Wales, and, in the opinion of many, is likely, within a short time, to approach Victoria in productiveness. It is now about seven years since gold was discovered on the west coast of the Middle Island, in the province of Nelson, but the reward for great labour and no small privation has been small, and the miners few in number. Lately, however, the quantity of gold there has increased, and some considerable successes are recorded. From a volume of statistics lately published by the Government, it appears that from April, 1857, to June, 1862, the total quantity of gold exported from Nelson has been 50,766 ounces. Gold has also long been known to exist at Coromandel, near Auckland, and at one time it was honoured with a “rush,” but it appears that the quantity produced has



hitherto been infinitesimal, namely, 615 ozs. only. It is since the return of June that the increase has taken place in the province of Nelson. It was not until the middle of the year 1861 that Otago took rank as an established gold field. An escort was established in August of that year, and a report drawn up by Mr. Pyke, the Chief Commissioner of the Gold Fields, gives the following as the monthly yield during the first twelve months:—

1861.	OZS.	OZS.
August .....	7,879	
September .....	15,300	
October .....	19,889	
November .....	74,177	
December .....	70,452	
	<hr/>	187,697
1862.		
January .....	65,464	
February .....	61,946	
March .....	43,359	
April .....	18,946	
May .....	45,747	
June .....	16,513	
July .....	17,569	
	<hr/>	269,544
Total .....	—	<hr/> 457,241

The statistical tables of the Government put the matter in a different way. They give the total export from Otago, up to September, 1862, which is fourteen months, as 489,446 ozs., and for the whole colony, 538,560 ozs. I have no complete return for October, November, and December last, so that I cannot state the precise quantity for the year 1862, so as to correspond with our returns; but an approximate calculation gives 144,000 for the three months, which will give the total of 1862 as 445,902 ozs.

Thus, then, the gold produced in Australia and New Zealand, in 1862, stands as follows:—

	OZS.
Victoria .....	1,711,508
New South Wales.....	584,519
New Zealand.....	445,902
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Total ....	2,741,929

Hence it appears that the actual supply of gold from all sources is very little short of what it was in 1857; and even if the quantity produced in Victoria should continue to decrease, the accounts from the Lachlan, and from Nelson and Otago, justify the conclusion that the shipments in 1863 will not fall short of, and will possibly exceed, those of 1862, as above stated.

I now proceed to examine the case from our own point of view. We exported—

	ozs.	£
In 1856 .....	2,985,696	= 11,942,784
„ '62 .....	1,711,508	= 6,846,942
Decrease .....	<u>1,274,188</u>	<u>= 5,095,842</u>

How is this enormous loss of purchasing power compensated? In the year of the greatest production of gold, the total value of our exports was 14,363,250*l.* Deducting from that figure the value of our gold, 11,942,784*l.*, the balance furnished by all other articles was 2,420,466*l.* In the year of the least production of gold (1862), the total value of our exports was 12,314,062*l.*; deducting from this figure, in like manner, the value of gold exported, 6,846,942*l.*, the balance furnished by all other articles was 5,467,120*l.*, being an increase of all articles, except gold, exceeding 3,000,000*l.*; or, to put it in another shape, although our export of gold has decreased by a sum slightly exceeding 5,000,000*l.*, our total purchasing power, our external trade has only fallen off by a sum of 2,000,000*l.*; which sum, so far as our internal condition is concerned, is more than compensated by the production of consumable articles which we formerly acquired in exchange for our gold and wool, in terms much less advantageous to the colony. But even this decrease of our purchasing power, though now, in 1863, for the first time real, has been only apparent during the last four years. During that period we have transmitted to London debentures amounting to 7,000,000*l.* These have really performed the functions of an export. I think it was Mr. Samson Ricardo who first applied the apt phrase “import of securities,” in discussing the balance of the export and import trade between England and the continents, as affecting the exchanges; and the expression was as happy as it is sound in principle. But that resource is now dried up, and the exporting merchants should be cautious in adapting their shipments to the means at our disposal for the purchase of them; and the figure of our exports for the last two years may now be taken as the measure of our purchasing power, which we may set down at 1,000,000*l.* per month; about two-thirds of which goes to England.

The imports for the first seven weeks of this year (1862), exceed the exports by 405,000*l.*, or about 18 per cent., and exchange is at a premium of  $1\frac{1}{2}$  per cent., but it is too early in the year to draw any useful inference from this; and we learn by the January mail, that exports to Australia exhibit a decrease. My own impression is, that if shipments to these colonies, and especially to Victoria, were regulated wholly by the advices of our merchants, we should seldom have to deplore any ruinous excess of supply and consequent depres-



sion of prices. Fluctuations to some extent are, no doubt, inevitable ; but in past years they have in a great measure been caused or aggravated by the operations of the consigning merchants at home ; though I believe that practice has been much checked of late years, and our trade, though not always so active as our merchants could wish, has, on the whole, been steady and sound. Insolvencies we have had, but they are small, and there have been very few great commercial failures.

But the above-named increase of 3,000,000*l.* in our exports other than gold (wool, tallow, hides, tin-ore, &c.), by no means indicates the beneficial change which has for some years been going on in the fields of production. We now produce an immense number of consumable articles, which we used formerly to import and pay for with our gold. Many of these are, no doubt, of trifling value, but in the aggregate, they represent a value greatly exceeding the value of that portion of gold which we have ceased to produce. I begin with agriculture. In 1856, the year of the greatest production of gold, we had only 115,135 acres of land in cultivation. The population was then in round numbers 400,000, and to provide for all their wants would have required the cultivation of about 600,000 acres. In March, 1860, the land in cultivation had increased three-fold, being 358,728 acres, whilst the population had only increased by one-fourth. In March, 1861, the cultivated land was 419,380, and at this time it is about 540,000 acres, though the exact returns are not yet completed. This, though still insufficient for the wants of the population, yields a large value for consumption which was formerly derived from abroad. I shall content myself with a comparison of the quantity of wheat and oats alone. In 1856 the crop was 1,148,011 bushels ; in 1860, it was 2,296,157 ; in 1861, it was 3,459,914 bushels, which is the last return completed. The annual increase for the last four years has averaged 22 per cent. Allowing only 20 per cent., however, the crop of 1862 should be 4,152,000 bushels, being an increase of 3,000,000 since 1856. Value about 750,000*l.* This, however, does not indicate the saving effected by producing our food instead of purchasing it with our gold. In 1856 and 1857 the price was about 60 per cent higher than at present ; so that the saving is nearly a *million and a quarter*. The crop of oats has increased from 614,679 bushels in 1856, to 2,633,692 bushels in 1861 ; the gain calculated as above, being about 400,000*l.* Barley, potatoes, maize, hay, have all increased, but not in so great a proportion. But the great increase of comfort and health, as well as an important source of wealth, arises from the greater abundance and cheapness of dairy produce, eggs and poultry, vegetables and fruits. The importation of Cork butter used to be enormous. Fresh butter found its way to the tables of a very few. Eggs were 6*s.* per

dozen, milk 1s. 4d. per quart, cabbages 1s. and 1s. 6d. each, fruits extremely dear. Most of these articles were drawn from Van Dieman's Land, and paid for with part of that very 5,000,000*l.* worth of gold which we have ceased to produce; but instead thereof, we produce the articles themselves, cheaper and better, because fresh instead of stale and often in a state of incipient decomposition. It would obviously be a matter of very great difficulty to estimate all the above, even approximately, in money; but I believe they yield more than a full compensation for our decrease of external trade.

There are two industries, partly agricultural and partly manufacturing, which have lately excited a good deal of attention, and have made such progress as to rank among the established industries of the country, and at some future day, not perhaps very distant, will yield a surplus for exportation—I mean wine and tobacco. The vine has been successfully cultivated since 1843. In that year 4 acres were planted by a Swiss vigneron, near Geelong. In 1853, 107 acres were planted, and 4,500 gallons of wine produced. It is, however, only within the last four or five years that the cultivation of the vine has engaged the attention of men of energy and means, and during the last four years, the growth of this important industry has been very great.

The following is a return for the last four years:—

Years.	Acres.	Number of Vines.	Grapes Sold.	Wine.	Brandy.
			cwts.	galls.	galls.
1859 .....	547	993,602	3,578	7,740	72
'60 .....	811	1,896,939	4,473	13,966	150
'61 .....	1,138	2,838,114	7,979	12,128	220
'62 .....	1,464	3,818,335	16,972	47,568	79

At present very few of the vines are in a productive condition, so that within the next few years the increase of wine will be greater than the extension of planting. This is shown by comparing the last two years. The vines planted have increased about 30 per cent. whilst the grapes sold have increased just 100 per cent., and the wine manufactured nearly 300 per cent. The ages of the vines, therefore, form an important element in our exportations, and are given in the following extract from the Registrar-General's statistical notes:—

	Number of Vines.
Under 1 year .....	711,674
1 to 2 years .....	546,563
2 „ 3 „ .....	558,171
3 and upwards .....	1,393,211
Unspecified .....	608,716
Total .....	<u>3,818,335</u>



New South Wales and South Australia are far in advance of Victoria in the cultivation of the vine and the production of wines. In the former colony, the great promoter of this industry is Mr. McArthur, whose father, one of the earliest settlers, first introduced the Merino sheep (see article "Wool and Woollen Manufactures," in the "Encyclopædia Britannica," 7th edition, written by the author of this paper). The wines of New South Wales and South Australia are now largely consumed here. They are gradually reforming our taste, which has hitherto rather affected stronger drinks, and are preparing the public palate for a wholesome appreciation of our own wines. It is not until after the fourth year that the vine becomes productive; and until 1862 the large demand for fruit and the small supply have diminished the quantity available for wine making; but as the young vines in the above table come into their fourth year, the quantity of wine produced will rapidly increase, and the town gardens will be more than enough to supply our tables with fruit. Nearly every private garden around Melbourne, and they are numerous, has from 100 to 300 vines, and these, I believe, are not included in the agricultural returns. These are also increasing from year to year, and in a very few years they will supersede imported wines to a great extent. It is, in fact, a great industry, well and successfully commenced.

Tobacco is another article for which the soil and climate of Victoria are admirably suited, and which has been long enough grown in the colony on a small scale to encourage its cultivation more largely. Let me here state that writers in favour of a particular colony, in speculating as to the productions likely to succeed, are in the habit of taking zones of climate, and concluding that as the vine, the orange, the olive, &c., succeed within certain latitudes in Europe, they must also succeed in colonies which are within similar latitudes. Such speculations are very useful, as they induce systematic experiments. But I am not here speculating on possibilities or probabilities. I am stating what has been done, and what is now doing, and my conclusions are deductive rather than inductive. With regard to tobacco, in 1860 the Registrar-General only felt himself justified in writing thus vaguely and briefly:—"Tobacco has been pretty constantly raised by squatters for use in dipping sheep for scab, but the quantity grown has never been considerable. In 1841, 72 acres were returned as producing 1,440 cwts., and in 1859 there were 66 acres enumerated, which are said to have yielded 873 cwts. Between these two periods the quantity of land returned as cultivated for tobacco, varies from 2 acres to 76 acres." These returns between 1841 and 1859 are not to be relied on. No one thought of cultivating as a business. Grown only in small patches as "sheep wash," no one deemed it of sufficient

importance to require "a return." My impression is, that for many years the colony has had from 80 to 100 acres in tobacco, producing from 12 to 15 cwts. to the acre; but, in truth, this ought not to be deemed tobacco at all. It was not, in fact used—it was never intended to be used—as tobacco. It was seldom called tobacco. It was merely "sheep wash;" and, as such, might have been put in the same class as arsenic and blue stone. Even then, however, it includes the list of those products which superseded imported articles, and thus comes within the principle of my argument. Since 1860 the returns have been more accurate; they are as follows:—

	Acres.	Produce.
1860.....	50	cwts. 463
'61.....	91	1,235
'62.....	220	2,552

There is every reason to believe that the production will be very considerably increased during the present year. A wholesale tobacco merchant, who retired from business a few years ago, has introduced some experienced cultivators from America, with seeds of several varieties. He has commenced a tobacco farm on some rich alluvial land, at Dandenong, about twenty miles from Melbourne, where he has 30 acres of several kinds of the best tobaccos of America in a very flourishing condition. The "Argus," of the 13th March, has a very full report of Mr. Politz's experiments. It is stated, I believe on his own authority, that his first crop will pay well, in fact, more than cover his first expenditure. Others are entering into the business in other parts of the country. There are duties on the importation of tobacco, which, although imposed for revenue and not for the purpose of protection, have the latter operation. These duties are 3s. per lb. on cigars, and 2s. per lb. on manufactured and leaf tobacco. We have no excise, and therefore the protection is at present enormous. Moreover, the experimental trial of new enterprises is happily the prevailing sentiment in the colony. It has been stimulated by the Acclimatization Society and by the press of the colony. A very wholesome spirit prevails in this respect. The man who introduces a new animal, or exhibits a new and useful product, is wisely clothed with a certain degree of popular respect. The public journals also teem with suggestions. Many of these are perhaps impracticable on economical grounds, from the large proportion of labour which enters into the composition of the articles suggested. For instance, a few years ago a smelting house for the



reduction of tin ore to metallic tin, was established at North Melbourne. Some splendid tin was produced, and the concern was apparently successful, but it was stopped by the price which the Melbourne merchants offered for the black sand from which the tin was produced. This price was of course governed by that which the English smelter could afford, and he could afford more than this Melbourne smelter, because labour, fuel, and all his other outgoings were less. Of iron ore we have also abundance; but I apprehend it will be many years before we can compete with Europe in iron-making, owing to the cheapness of labour and of fuel, and the lower rate of profit with which the English capitalist is, I will not say content, but rather to which he is compelled to submit. We have coal, which will probably be shortly produced in sufficient quantity and at a price to dispense with some portion of our present importations from New South Wales; but at present the price of coal is about five times as high as it is at the pit's mouth in the iron-making counties of England.

I will now very briefly enumerate other enterprises which have grown up of late years, all of which, to some extent, dispense with importations. Some of these are of marked importance, others are trifling in amount, but, as I have already stated, they make up a great aggregate.

*Machinery* is now pretty exclusively made in the colony. We have three extensive engineer's establishments in Melbourne, two or three in the suburbs, and several at the great towns on the gold fields. Most of the machinery now used on the gold fields is of home manufacture, and some improvements are the subject of local patents. In the early years of our mining enterprise no machinery was used, and when, in consequence of deep sinking and the opening of the quartz reefs, it was introduced, repairs were almost impracticable. Now the work is well performed in well ordered establishments at Ballarat, Castlemaine, Sandhurst, and other mining towns.

*Railway carriages*, which were imported for the first railway opened to Hobson's Bay, are now extensively manufactured in Melbourne. Private carriages of every description are also made, though there is still a large importation from America.

*Refined sugar* is now produced in the colony. A sugar refining company was established at Sydney about twenty years ago, and about five years since a company commenced business at Sandridge, the port of Melbourne, where they have extensive and suitable premises. They also distil from sugar or molasses.

*Illicit distillation* has long been extensively carried on, stimulated no doubt by our high duties. Now and then the police "spring the plant," and convictions take place, but still the trade flourishes. Lately, however, distillation has been legalized and regulated, and

the illicit trade will be checked. Still, whether legally or illegally conducted, distillation is a manufacture which dispenses with some importation. Of course we good citizens hunt down the rascals when we get on their trail, and convict them and punish them if possible, but they are producers for all that.

*Woollen cloth*, of the kind called tweed, used to be manufactured in Sydney, and the children of the colonies were patriotically clothed in Sydney tweed. Being made of fine wool, it was far superior to that of the West Riding of Yorkshire. The manufacture was, however, put a stop to by two circumstances. The gold made money cheap, and everything else, labour included, dear; and the reformed tariff of 1852 abolished the *ad valorem* duty of 10 per cent., which encouraged the Sydney looms. Lately, however, it has been revived without protection, and a small factory has been set up at Richmond, near Melbourne.

Of *lead pipes*, by hydraulic machinery, there are several makers in Melbourne, and two persons have imported an invention, patented by one of them, for the manufacture of *papier maché* pipes. There is a contest in our courts as to the patents, but that, of course, does not touch the fact that the manufacture is *un fait accompli*.

I will conclude this part of my paper by merely naming some other articles which occur to me, without pretending to exhaust the list:—

*Breweries*; *saw mills*; *wire fencing* (*wire drawing*, suggested but not yet adopted, that I am aware of); *furniture*; *soap*, *candles*; *biscuits* (by steam machinery); *bricks*, *tiles*, and *red pottery*; *confectionary* (i.e., made of sugar); *kaolin*, *cement*, *lime*; *oils* from the *Eucalyptus*; *leather* and *tanned skins*; *hats* and *caps*; *iron rolling-mills*; *jewellery*; *paper bags* and *pasteboard boxes* for tradesmen.

Let it be remembered, that when 400,000 people produced and had the handling of 12,000,000*l.* worth of gold, most of these manufactures were impossible. It was cheaper to produce gold and buy these things elsewhere; but when 550,000 people have only 6,000,000*l.* of gold, they are constrained to turn their hands to something else; and this they have done and are doing with great energy. Let not the trifling nature of some of the above-named articles be despised. A few years ago a patent was applied for, for an alleged invention to cement together two pieces of what is called “edging” for women’s caps, previously “goffered” by an English patented invention. It was opposed before the then Attorney-General, and it came out in evidence that the contest was for a trade of 40,000*l.* a-year! Am I not right in concluding that a host of these small articles make up a great aggregate?

I will now, with a view to certain inferences, compare the bank



returns for the last quarter of the year of the largest production of gold with the same quarter of the year of the smallest production.

	1856.	1862.
	£	£
Notes in circulation .....	2,325,263	1,605,253
Deposits .....	6,070,983	8,119,593
Coin and bullion .....	3,450,000	2,350,645
Debts due to the bank ....	6,595,892	10,005,342
Liabilities .....	9,435,982	9,927,079
Assets .....	11,944,542	13,369,102
Undivided profits .....	1,151,838	1,386,022

Now the general conclusions which I draw from this return are, (1.) A great increase in the aggregate wealth of the community, as indicated by an increase in the deposits of about 34 per cent. (2.) A vast increase of internal trade and in exchange, as shown by an increase of 50 per cent. in the accomodation afforded by the banks to the commercial community, the kind of debts due to the bank being almost exclusively of discounts of mercantile paper. During the interval the population has increased only 26 per cent., so that the difference between 26 per cent., and 34 per cent. indicates an increase of wealth, whilst the difference between 26 and 50 per cent. indicates an increase of internal trade. I say *an* increase rather than *the* increase, because there are other indications, such as the number of joint stock companies, which have grown up since 1856, the great extension of commercial buildings, and other facts, which would require more space than I can venture to claim. I am here dealing only with broad features without pretending to exhaust details. The third conclusion which I draw from the above comparative table, is the improved condition of the banks themselves, as indicated by the large increase of assets as compared with the small increase of liabilities, and the improvement of the reserved fund of undivided profits. Whilst the liabilities of all the banks have only increased half a million, the assets have increased a million and a-half; and whilst they have one and all continued to pay good dividends—generally 10 per cent.—their reserved funds have increased about 20 per cent. The most striking feature in the table is the falling off of their note circulation, and the consequent absence of any necessity for keeping up so large a stock of coin. Of late years the coinage of the Sydney Mint has filled the channels of circulation, and the banks have found that it was very little worth their while to keep up a large note circulation, which entailed the necessity for keeping a large stock of gold in their vaults. As there are nine banks of issue in the colony, with their numerous branches, the share of each bank has become insignificant, hence most of them have become indifferent

to their note circulation, and cheques are paid in sovereigns on the counter as often as in notes, without the question "how do you want it?" So that frequently when notes are wanted they must be asked for.

While these marks of prosperity have been developing themselves, the population of the colony has been very nearly stationary during the last two years. At the end of 1860 the Registrar-General computed the total at 548,412, but there is always a difficulty in getting at the loss and gains between Victoria and New South Wales inland, across the Murray river; and in April, 1861, when the census was taken, the total was found to be 540,322. Notwithstanding the excess of males over females, the increase, by excess of births over deaths, is about 4 per cent. per annum. In 1861, indeed, it was  $4\frac{1}{8}$  per cent., but in the latter half of 1862 I find the numbers give  $3\frac{1}{3}$  per cent. only. Adding the actual increase by births, and deducting the balance of emigration by sea in the nine months of 1861, subsequently to the census, we have a total of 549,204 at the close of 1861. Six months later, namely, in June, 1862, the published computation gives 548,944, and on the 30th September, 549,901. The actual increase, during the last half year, would be about 10,000, but we must have lost that number since that time by the steady emigration to Otago; and in round numbers our population may now be stated at 550,000. This very small increase of about 10,000, since the census of 1861, two years since, in spite of a natural increase of more than 40,000, and an immigration of about as many, is owing, in a great measure, to the attractiveness of the Lachlan and New Zealand gold fields. We may certainly regret that our population is not now 600,000 as it might have been, but I cannot regard the result as an evil. The three great "rushes" to Otago, have been attended with two very beneficial results, and I think there is a third in prospect. First, the emigration has consisted almost entirely of males, so that the proportion of the sexes in this colony has been greatly improved. This appears very clearly from the return up to September last. There was during the quarter an increase in the female population of 1,345 souls, and a decrease of the male population of 4,951 souls. These are the figures by immigration and emigration; but taking the whole increase and decrease, male and female, by births and migration, we have a net increase of 3,649 females, and a net decrease of 2,692 males; and the proportions are improved from 59.32 males to 40.68 females per cent. in June, to 58.68 males to 41.32 females per cent. in September, 1862. If in future we correct the disproportion by 1 per cent. per quarter, we should have the sexes equalled in about two years and a half. Not that I expect that result. Wherever immigration is voluntary, there will always be a considerable excess



of males. It is so in America to this day, and a civil war is certainly a severe remedy to reform the discrepancies of a population, and preserve the integrity of a principle in political economy. The natural cure is to be found in the free migrations of the people—just what is now being voluntarily carried out. Another benefit derived from this emigration to New Zealand, consists of the enormous trade created thereby. We have several large and powerful steamers running between Otago and Melbourne as fast as they can load and discharge; these are nearly all owned in Melbourne. Sailing vessels also find freight in this trade. Our surplus stock of goods finds a market in Dunedin. If our consumers go thither, we must of course send the objects of their consumption after them. Melbourne has secured by the wealth and energy of her merchants by far the greater part of this trade, and it has undoubtedly saved the colony from great depression, if not from a glut and revulsion. As to the future benefit to which I have alluded, it is this:—The Otago gold fields constitute a new attraction to England, similar to Victoria in 1853-54, though in a mitigated degree. If every person who was attracted to Victoria in 1852-53-54 had remained, our population by this time would have *exceeded a million*. At first we drained New South Wales, Tasmania, and South Australia of people; then came the great influx from Europe. These gradually spread over the other colonies, so that Victoria, by the attractiveness of her gold fields, re-peopled the countries which she had before partially depopulated. There is not one colony which did not suffer materially from the superior attractiveness of Victoria in the early years of gold; there is not one colony that has not since been wonderfully benefited by the same cause. Otago is now the lode-star of immigration, and the same sort of overflow will take place in two or three years, which we witnessed a few years since, and are, to some extent, still witnessing here. Victoria raised the population of Australia in twelve years from four hundred thousand to a million and a-quarter. Otago steps in at the happy moment to take up the *role*, and will in a few years raise it to a couple of millions, and that, too, without that destructive effect on all production except gold, which was the immediate consequence of the first discovery. In Victoria, in 1851-52, no one would do any work except dig for gold. Tailors abandoned their shop-boards, clerks their desks, and lawyers their briefs. You could not get a cabbage, because all the gardeners had “gone to the diggings.” It is not so in Dunedin. The men who go there, go to keep to their trades. I know one man who went down to start coaches from Dunedin to the diggings; I know another who went expressly to grow cabbages, and others to follow their trades—in 1852 they would have gone to Ballaarat to dig. This sticking to their trade is, in fact, the wholesome feature of the new rush. In the early part of

last year the railway from Geelong to Ballaarat was opened, but the double line not being then completed, the department was not in a condition to carry goods to any extent. In October the Melbourne and Murray River line was opened to Sandhurst. The distance of the two is, in round numbers, 200 miles. There are also short railways having their termini at, and radiating from, Melbourne, constructed by four distinct private companies. These connect the surrounding suburbs with the city, and are of great convenience to the inhabitants; but it is only one of these (that which connects Hobson's Bay with the metropolis), which is of great commercial importance. The total extent of railways in operation is 222 miles. The Government has in its hands the means of completing the northern line to Echuca, on the banks of the Murray, where the Campaspe empties itself into that river. The embouchure of the Goulbourne is only a little to the eastward. This line measures a trifle over fifty miles. These Government lines have been constructed with borrowed money, as everybody knows, 7,000,000*l.* raised in England, 1,000,000*l.* raised here. There was a premium of 385,000*l.*, and they would have been constructed for some hundreds of thousands less than the original estimates, had not the Government obtained the sanction of the Legislature to purchase the Geelong line of the private company, which, with the repairs to that line, will require about 300,000*l.* or perhaps 400,000*l.* in addition. This the Government have authority to raise in the colony. Upon these loans the annual charge is half a million. It is not easy as yet to ascertain what the net revenue from the Government lines will be. They are scarcely yet in a condition to do all the work they will ultimately be capable of, and undoubtedly the revenue will be greatly increased when the line is open to Echuca. The revenue at present is 45,000*l.* per month, and is increasing. This will give 540,000*l.* for the year. The working expenses are roughly estimated at one-half, but I am informed they will not exceed, and will probably be kept below, 250,000*l.* In round numbers we may call the net revenue 300,000*l.* for the year 1863, to go towards the payment of the interest which is charged on the consolidated revenue. This net revenue is  $3\frac{3}{4}$  per cent. on the capital. I do not think there can be any reasonable doubt that in two or three years the net revenue will be worked up to the interest, or 6 per cent. I am not, however, upon conjecture or speculation, but upon the facts as I find them; and the fact with which I am now to deal is a deficiency of 200,000*l.*, which the people of this colony now have to meet out of taxation. Not that we should care to be taxed less if that were not the case, but we should have 200,000*l.* more to expend on other improvements. Is that 200,000*l.* a loss to the community? I answer it is not. It is in the nature of a guarantee premium, to secure the great economical gain to the country from



the cheapness of transport generated by these railways. There is no country in the world which has illustrated, and still illustrates, this so perfectly as Victoria. Our existence has been of such short duration, and our progress so rapid, that everything may be said to have passed before the eyes of everybody. We can all recollect our roads in the condition in which General Wade is said to have found them in the north of England. In 1852-53 we saw these roads "before they were made"—1854-58 was the era of macadamization—1859-62 that of railways. The revolution from the second to the third period was not so marked as from the first to the second. More than 100*l.* per ton has been paid for the carriage of goods to Bendigo; 40*l.* and 50*l.* was not uncommon. As Macadam moved, Melbourne cartage got down to 18*l.*, then to 12*l.*, and latterly to 5*l.* and 6*l.* per ton. We now think that enormous. The Government charge is 50*s.* to Sandhurst and 42*s.* to Ballaarat, and in proportion for shorter distances, and the public are actually agitating for reduced rates. At present I have not data to make an exact calculation of the gain, but I can make one which will certainly be on the safe side. At present, as I have said, the goods traffic is in its infancy, but if we take the twelve months at no more than the first two months, the number of tons conveyed will be, on the Sandhurst line, 128,073; on the Ballaarat line, 72,840; on both, 200,913. Deducting one-third for short distances it is equal to 134,000 tons carried the whole way. In 1860, the winter rate of cartage to Bendigo was 6*l.* 10*s.*; the summer rate, 5*l.* 10*s.*; mean rate, 6*l.* per ton; and even then the carriers have the benefit of twenty miles of railway. In 1861, the winter rate was 5*l.*, the summer rate 4*l.* 5*s.*, mean 4*l.* 12*s.* 6*d.* This makes an average saving of 2*l.* 6*s.* 6*d.* per ton, or a total of 311,550*l.* gain, against the revenue deficiency of 200,000*l.* In this calculation nothing is allowed for the superior condition of the goods when delivered; nothing for time; nothing for the absence of depredation, which used to be considerable; nothing for passengers and their convenience; and nothing for the revenue of the Echuca line when completed, for the 200,000*l.* is charged on the whole. Taking all these into account, I do not doubt that the economical advantage distributed over the whole country is at least *half a million*, secured at a guarantee or insurance charge of 200,000*l.*; and as the charge is not subject to increase, but may be reduced as the traffic extends, the advantage must be deemed progressive. The Echuca line will add a fourth to the length of the lines, and ought, consequently, to add one-fourth to the net revenue; that will reduce the deficiency to 125,000*l.*; but it will also add one-fourth to the sum of economical advantages. Englishmen, who only know the change from our four-horse coaches, so splendidly appointed and worked, to the railway, can form no conception of the revolution which we have

experienced. It is a change from misery to comfort—a sudden jump from the eighteenth to the middle of the nineteenth century.

Though the Ballaarat line connects Melbourne with the rich gold fields and trade of the west, and will no doubt hereafter be extended by private enterprise, the northern line is pregnant with far more momentous consequences to the trade of Melbourne. The line to Echuca will, to use the expression of Mr. Gideon Laing, a Murray river squatter, tap the whole trade of the Murrumbidgee district. I do not think the English public are at all aware of the extent of natural inland navigation on our northern frontier. From Goolwa to Albury the Murray is navigable, except in the summer season, for a distance of 1,754 miles. Its tributaries, the Edward, the Wakoul, &c., are navigable for nearly 300 miles. The Murrumbidgee, with its lakes, Gunga, Lala, Waldura, &c., has been navigated as far as Gundagai, a distance of over 900 miles. The Darling is navigable beyond Fort Bourke, where it is called the Barwon, a distance of about 800 miles. The Lachlan has also been ascended, but I cannot ascertain how far. Here we have an inland navigation of some 4,000 miles, and according to some estimates 4,500. In the driest season of the year this navigation becomes impracticable even on the Murray. The Murray is at all times deep enough, but it is so obstructed by snags that it is impassable, and we must wait for more population, and more wealth and trade, before it can be improved. Even now the effect of the snags is not worse than that of the frost of Canada, which shuts up their splendid rivers for many months. This navigation is not merely speculative or prospective. There were last year ten steamboats, and, I believe, as many barges, navigating the Murray and its tributaries. The aggregate tonnage is 2,373, and the horse-power 400. There are names of places on our colonial maps which are not to be found in the maps published in England, but if your readers will take the trouble to turn to any good map they will understand the distances which I am about to give. The boundary dividing South Australia from Victoria and New South Wales runs north and south, and cuts the Murray near a little lake marked as Lake Victoria. The place is called Chowilla, and is so marked in some maps. Below that, and to the westward, the Murray flows through South Australia, and the distance is 493 miles. From that point to Albury, 1,261 miles, the Murray forms the boundary between New South Wales and Victoria. From the boundary to the mouth of the Darling is 155 miles, and thence to the mouth of the Murrumbidgee, 260 miles further. The Lachlan falls into the Murrumbidgee. From the mouth of the Murrumbidgee to Echuca is 450 miles, and thence to Albury is 376 miles. This shows how well situated Echuca is to “tap” the trade of the Murray, the Darling, the Lachlan, and the



Murrumbidgee. On the north side of the Murray, opposite Echuca, the New South Wales township is called Moama. Albury is on the New South Wales side, and it has lately gained a character for producing good wine. The Murray is bridged at Albury and Echuca. I may also mention that the River Goulbourne, which flows north and enters the Murray to the east of Echuca, is navigable for about 200 miles, but is obstructed by snags like the other rivers. It is now the favourite locality for the establishment of vineyards, a Melbourne company having planted a very large block of land.

*Note.*—I find it necessary from information obtained since writing the above, to correct what I have too hastily assumed as to the conditions of iron-making in these colonies. In New South Wales, a company has been for some time in existence, called the Fitzroy Iron Company. In the land they occupy, they enjoy four of the requisites necessary to the production of iron, namely, an ore free from sulphur, and capable of being easily smelted, an extensive seam of coal, several (I think my informant said four) feet thick, limestone in abundance, and pure clay in an unlimited quantity. The works are now complete, and the company is ready to make iron, and can produce pig-iron at a price rather lower than the price in Wales. I am assured that the coal can be raised at a lower price than in Yorkshire, and that the high price of coal throughout these colonies, arises from expenses incurred after the coal leaves the pit's mouth. I was also shown a correspondence with the Government relative to the supply of railway iron, and the Government express themselves willing to contract with the Fitzroy Iron Company for 10,000 tons of rails at 12*l.* per ton. I did not see such an acceptance of this offer as would convert it into a valid contract, but I was informed, in so many words, that the contract was complete, and that the company is preparing to execute it. I believe that in Wales the price of pig-iron is now as low as 31*s.* or 32*s.* per ton; my informant, who is connected with the Fitzroy Company, assured me that they can produce iron at even a lower price; of course this would not be necessary to secure the markets, as the freight to Australia is in itself a large protection; and if they can produce at the same price as in Wales, they will enjoy a monopoly price until they are met by some competition in the colonies. And even this is not unlikely to take place in Victoria. Coal is now being raised at Cape Paterson, and I learn that the mere cost of raising it does not reach 5*s.* per ton. But the great difficulty is in conveying it to the Melbourne market. First, they want a tramway from the pits to the sea; then they require some improvements in the way of wharfage; then there is the freight to Melbourne wharf, and then the landing charges. With all this, however, the Cape Paterson Coal Company expect shortly to deliver coal at Melbourne some shillings cheaper than the lowest price of Newcastle (Sydney) coal. Some two years ago the company sent me a bushel of the coal, and I gave it a fair trial, and it appeared to me to be equal to, indeed scarcely distinguishable from, the Sydney coal. I now learn for the first time that the Cape Paterson Coal Company have, as well as the Fitzroy Company, abundance of iron ore in close proximity with their coal—the ore over-lying the coal-seam. They have, also, fine clay, but no limestone for flux; that, however, is to be found within a reasonable distance, and there seems every probability that iron-making in Victoria will not be very far behind that enterprise in New South Wales.

I may add here what I omitted before, that a company is forming—is indeed, I believe, formed—to work the silver ore of St. Arnaud, whilst antimony is obtained at McIvors, about eighty miles north of Melbourne.

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## BRITISH ASSOCIATION, 1863.

THIRTY-THIRD *Meeting of the* BRITISH ASSOCIATION *for the*  
*Advancement of Science, held at* NEWCASTLE - UPON - TYNE,  
 26th August—2nd September, 1863.

*Section (F).—Economic Science and Statistics.*

*President.*—WILLIAM TITE, M.P., F.R.S.

*Vice - Presidents.*—Christian Allhusen; Neilson Hancock, LL.D.; James Heywood, F.R.S.; Sir John Ogilvy, Bart., M.P.; Colonel W. H. Sykes, M.P., F.R.S.

*Secretaries.*—Frederick Purdy; Edmund Macrory; Thomas Doubleday; James Potts.

*Committee.*—Edmund Ashworth; S. A. Beaumont, M.P.; I. Lowthian Bell, Mayor of Newcastle; James Bird, M.D.; W. M. Bond; C. H. Bracebridge; William Camps, M.D.; Walter Elliot; Rev. William Emery, B.D.; Henry Fawcett; J. G. Fitch; Sir J. D. Hay, Bart., M.P.; Joseph Heald; Professor Hennessy; Professor Jowett; Sir Robert Kane; Alderman Neild; J. H. Orpen, LL.D.; Colonel Torrens; Sir Harry Verney, Bart., M.P.; Joseph Watson; Thomas Webster, F.R.S.; Thomas Wilson.

The following Subjects occupied the attention of the Section:—

*Thursday, 27th August, 1863.*

*President's Opening Remarks.*

*Dr. James Bird.*—On the Vital and Sanitary Statistics of our European Army in India, compared with those of the French Army under like conditions of Climate and Locality.

*C. H. Bracebridge.*—Coventry Freehold Land Society.

*Frederick Purdy.*—On the Decrease of the Agricultural Population of England, 1851-61.

*Henry Fawcett.*—On the Effects of the Recent Gold Discoveries.

*Friday, 28th August, 1863.*

Discussion on Mr. Fawcett's Paper on the Effects of the Recent Gold Discoveries.

*James Heywood.*—On the Opening and Extension of Durham University Academical Endowments.

*Dr. Camps.*—On the Sanitary Condition of the Troops in India.



*Saturday, 29th August, 1863.*

Discussion on Dr. Camps's Paper, On the Sanitary Condition of the Troops in India.

*Colonel Torrens.*—On Transportation in connection with Colonization.

*Frederick Purdy.*—On Mortality in Lancashire.

*James Heywood.*—Remarks on Native Colonial Schools and Hospitals, from the Sanitary Statistics of Miss Florence Nightingale.

*The late T. C. Angus.*—Statistics of the Tanning Trade of Newcastle-on-Tyne.

*Monday, 31st August, 1863.*

*Thomas Webster.*—Report of the Committee on Technical and Scientific Evidence in Courts of Law.

*William Henry Charlton.*—A Statistical Account of the Parish of Bellingham.

*Colonel Sykes.*—Military Budgets of English and French Armies, for 1863-64, statistically compared.

*William Neilson Hancock, LL.D.*—On the Difference between Irish and English Poor Law.

*Tuesday, 1st September, 1863.*

*The President.*—The Statistics connected with the Architectural Improvements in the City of Paris.

*Henry C. Allhusen.*—The Volunteer Force; its Comparative Cost, Development, Present State, and Prospect.

*W. Fallows.*—On the Origin of the Stockton and Darlington Railway.

*Thomas Robins.*—Observations on Criminals.

*John Lamb.*—On the Reduction of the Death-rate in Gateshead by Sanitary Measures.

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## PROCEEDINGS OF THE STATISTICAL SOCIETY.

[Continued from vol. xxiii, p. 387.]

## SESSION 1860-61.

*First Ordinary Meeting, Tuesday, 20th November, 1860.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

W. J. Bovill, Esq.		Archibald Hamilton, Esq.
		George Porter, Esq.

The following Paper was read:—

“On the Criminal Returns, 1854-59, with Special Reference to  
“the Results of Reformatories.” By T. B. Lloyd Baker, Esq.*Second Ordinary Meeting, Tuesday, 18th December, 1860.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

Henry G. Bohn, Esq.		Pliny Miles, Esq.
Moses C. Cooke, Esq.		A. G. Ramsay, Esq.
W. Gilstrap, Esq.		W. L. Sargant, Esq.
G. R. Haywood, Esq.		E. Stephens, Esq.
Stewart Helder, Esq.		Chief Justice Temple.
M. Henry Marsh, Esq., M.P.		W. V. Venables, Esq.
		Captain Edward Walter.

The following Paper was read:—

“On the International Statistical Congress, London, 1860.” By  
J. T. Hammack, Esq.*Third Ordinary Meeting, Tuesday, 15th January, 1861.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

I. R. D. Legg, Esq.		William Purdy, Esq.
Herbert C. Miles, Esq.		J. Stephenson, Esq., M.D.

The following Paper was read:—

“On the Progress of the Public Expenditure of the United  
“Kingdom.” By Leone Levi, Esq.*Fourth Ordinary Meeting, Tuesday, 19th February, 1861.*

Charles Jellicoe, Esq., in the Chair.

The following Paper was read:—

“On the Effect of the Gold Supplies, on the Foreign Exchanges,  
“and on the Price of Silver.” By F. Jourdan, Esq.



*Fifth Ordinary Meeting, Tuesday, 19th March, 1861.*

The Right Honourable Sir John S. Pakington, Bart., M.P.,  
President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz. :—

Colonel Hannington.		W. C. Plowden, Esq.
	James Waddell, Esq.	

The following Paper was read :—

“ On the Taxation of Enjoyments (Jouissances),” by M. de Parieu. By Frederick Hendriks, Esq.

*Sixth Ordinary Meeting, Tuesday, 16th April, 1861.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz. :—

John Flint, Esq.		John Messent, Esq.
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The following Paper was read :—

“ On the Fallacy of Mr. Warburton’s Argument in favour of an  
“ Indiscriminating Income Tax.” By W. L. Sargent, Esq.

*Adjourned Ordinary Meeting, Tuesday, 23rd April, 1861.*

James Heywood, Esq., Vice-President, in the Chair.

The following Paper was read :—

“ On Serf Emancipation in Russia (by M. Von Buschen).” By  
J. T. Hammack, Esq.

The adjourned discussion on Mr. Sargent’s Paper was resumed.

*Seventh Ordinary Meeting, Tuesday, 21st May, 1861.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz. :—

A. R. Adams, Esq., D.C.L.		George Ridley, Esq.
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The following Paper was read :—

“ On the Earnings of Agricultural Labourers in England and  
“ Wales.” By Frederick Purdy, Esq.

*Eighth Ordinary Meeting, Tuesday, 18th June, 1861.*

Charles Jellicoe, Esq., in the Chair.

The following Candidate was elected a Fellow of the Society,  
viz. :—

William Evans, Esq.

The following Paper was read :—

“ Statistical Analysis of the Patients treated in Guy’s Hospital  
“ from 1854-60 inclusive.” By J. C. Steele, Esq., M.D.

## SESSION 1861-62.

*First Ordinary Meeting, Tuesday, 19th November, 1861.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidate was elected a Fellow of the Society,  
viz.:—

W. R. D. Gilbert, Esq., A.I.A.

The following Paper was read:—

“On the Growth of the Human Body in Height and Weight in  
“Males, from 18 to 30 Years of Age.” By J. T. Danson, Esq.

*Second Ordinary Meeting, Tuesday, 21st January, 1862.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

R. C. Christie, Esq., M.A.

J. A. Horner, Esq.

J. Cheetham, Esq.

H. Twelvetrees, Esq.

T. Bazley, Esq., M.P.

The following Paper was read:—

“On the Vital Statistics of Sweden.” By F. Hendriks, Esq.

*Third Ordinary Meeting, Tuesday, 18th February, 1862.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

H. W. Acland, Esq., M.D.

M. Carpenter, Esq.

H. B. Carter, Esq.

J. S. Cudlip, Esq.

L. H. Courtney, Esq.

A. Day, Esq.

C. J. Kain, Esq.

R. Lewis, Esq.

F. Reynolds, Esq.

Rev. J. Williams, B.D.

The following Paper was read:—

“On the Progress and Economical Bearing of Public Debts in  
“this and other Countries.” By Dr. Leone Levi.

*Special Sessional Meeting, Tuesday, 4th March, 1862.*

Right Hon. Sir J. S. Pakington, Bart., M.P., President, in the Chair.

The following Paper was read:—

“On the Sources of Popular Education in England and Wales;  
“Present and Future.” By Horace Mann, Esq.



*Fourth Ordinary Meeting, Tuesday, 18th March, 1862.*

James Heywood, Esq., F.R.S., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

W. D. Biden, Esq.		H. Thomson, Esq.
Dr. Washbourne.		

The following Papers were read:—

“Observations on the Statistics of Illegitimacy.” By W. G. Lumley, Esq.

“On Prison Statistics and Discipline in Lower Bengal.” By Dr. Mouatt.

*Fifth Ordinary Meeting, Tuesday, 15th April, 1862.*

Edwin Chadwick, Esq., C.B., in the Chair.

The following Paper was read:—

“On the Earnings of Agricultural Labourers in Scotland and Ireland.” By Frederick Purdy, Esq.

*Sixth Ordinary Meeting, Tuesday, 20th May, 1862.*

Right Hon. Sir J. S. Pakington, Bart., M.P., President, in the Chair.

The following Candidate was elected a Fellow of the Society,  
viz.:—

T. A. Readwin, Esq.

The following Paper was read:—

“On the Power of the Enclosure Commissioners, and the Principles upon which they have exercised them.” By J. W. Tottie, Esq.

*Seventh Ordinary Meeting, Tuesday, 17th June, 1862.*

Dr. Farr, F.R.S., Treasurer, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

J. Beal, Esq.		B. Newbatt, Esq.
G. A. Cape, Esq.		C. E. Newbon, Esq.
J. E. Leyland, Esq.		C. H. Ogbourne, Esq.

The following Paper was read:—

“On the Statistics of Tonnage during the First Decade under the Navigation Law of 1849.” By J. Glover, Esq.

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## SESSION 1862-63.

*First Ordinary Meeting, Tuesday, 18th November, 1862.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

W. A. Porter, Esq., M.A.		Don José Emilio de Santos.
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The following Paper was read:—

“On the Vital Statistics of Tasmania.” By Dr. E. S. Hall.

*Second Ordinary Meeting, Tuesday, 16th December, 1862.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

J. H. Evens, Esq.		H. Jeula, Esq.
J. E. Farley, Esq.		C. F. Macdonald, Esq.
A. Harvey, Esq.		Rev. J. H. Ward, M.A.
T. Hattersley, Esq.		T. Wilson, Esq., M.A.

The following Paper was read:—

“On the Recent Population Statistics of the British Colonies  
and Dependencies.” By J. T. Hammick, Esq.

*Third Ordinary Meeting, Tuesday, 20th January, 1863.*

Colonel Sykes, M.P., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

A. S. Burnett, Esq.		H. D. Macleod, Esq., B.A.
		E. G. Noott, Esq.

The following Paper was read:—

“On the Cotton Trade and Manufacture, as affected by the  
Civil War in America.” By Dr. Leone Levi.

*Fourth Ordinary Meeting, Tuesday, 17th February, 1863.*

W. Newmarch, Esq., F.R.S., in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

W. F. Fergusson, Esq.		W. H. Ransford, Esq.
		R. Williamson, Esq.

The following Paper was read:—

“On the Rationale and Working of the Patent Laws.” By  
Rev. J. E. T. Rogers, M.A.



*Fifth Ordinary Meeting, Tuesday, 17th March, 1863.*

James Heywood, Esq., Vice-President, in the Chair.

The following Candidate was elected a Fellow of the Society,  
viz.:—

J. Lambert, Esq.

The following Paper was read :—

“ On the Recent Financial and Taxation Statistics of the United  
“ States.” By Cornelius Walford, Esq.

*Sixth Ordinary Meeting, Tuesday, 21st April, 1863.*

Colonel Sykes, M.P., President, in the Chair.

The following Paper was read :—

“ On the Direct Imperial Expenditure for the Colonies.” By  
Frederick Purdy, Esq.

*Seventh Ordinary Meeting, Tuesday, 19th May, 1863.*

Colonel Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

J. Edgcome, Jun., Esq.		J. W. Gibson, Esq.
Leedham White, Esq.		

The following Paper was read :—

“ On the Pay of the Soldier as compared with the Wages of the  
“ Agricultural Labourer.” By Major-General Sir A. M. Tulloch,  
K.C.B.

*Eighth Ordinary Meeting, Tuesday, 16th June, 1863.*

Colonel Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society,  
viz.:—

J. Beddoe, M.D.		W. Ewart, Esq., M.P.
J. G. P. Child, Esq.		

The following Paper was read :—

“ On Sufficient and Insufficient Dietaries, with special reference  
“ to the Dietaries of Prisoners.” By Dr. W. A. Guy.

## MISCELLANEA.

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I.—NOTE *on* CRIMINAL RETURNS. *By* W. M. TARTT, F.S.S.

As it may sometimes be thought desirable to record the practical results of suggestions or inquiries made by the Statistical Society, or in connection with its proceedings, I beg to submit the following particulars in reference to some improvements in our *Criminal Returns*.

At a meeting of the British Association at Cheltenham, in 1856, it was felt by the Committee of Section F, that the information on this subject was very imperfect either for judicial or statistical purposes.

A report upon such returns was consequently directed to be prepared,\* which was presented at the meeting of the Association, the following year, and printed *in extenso* in vol. xx of this *Journal*. An abridgment of it was also given in the Transactions of the Association for 1857.

Two of the points insisted upon, as calculated to give “a better knowledge of the classes whom we have to punish or reclaim,” were (1) to ascertain “whether the crimes committed in any particular district were by residents or non-residents,” the former indicating something in the social state of the locality which required to be remedied; the latter being merely accidental; and (2) it was suggested as desirable to have a record of offenders similar to the *Casiers Judiciaires* of France; which were fully described in the report.

The subject was again incidentally referred to at the meeting of the Association at Leeds, in 1858. In a conversation at that time with the late Mr. Talbot Baines, he mentioned that in Lancashire, where he was Chairman of the County Sessions, returns of offences and punishments were printed and circulated at the end of each quarter, but they were confined to convictions under the “Juvenile Offenders” and “Criminal Justice” Acts. This was at least a beginning; and with a view to extend its adoption, it was moved at the Trinity Sessions for Gloucestershire, 1860, and carried, that similar returns should be made; but only printed annually. They

\* “On the Present Mode of Framing our Criminal Returns, and on the best Means of Improving them; having due regard to the recorded Experience of the French and Prussian Governments.”



contained, in columns, the date of commitment, name, age, offence, term of imprisonment, previous convictions, personal description, and other indications. Whether they were adopted in any other counties I am not informed.

In this state the matter rested till the Winter Assizes of 1862, when the increase of crime consequent upon the lenient treatment of liberated convicts, had caused alarm throughout the country, and the Grand Jury at Gloucester made a presentment in which they ventured to hint at the necessity of an enactment to secure a *systematic record* in criminal courts of each previous conviction of an offender," and they prayed the Judge to bring it before the Home Department.

In anticipation, however, of any action by Government, Mr. Baker, of Hardwicke Court, at the Epiphany Sessions for Gloucestershire, 1863, obtained the appointment of a committee to take this requirement into consideration, and upon their report it was determined that a return of *all* convictions should annually be printed according to the subjoined form :—

Proposed Return of Conviction

Date of Com- mitment.	Name.	Known or Not Known to Police.		If Known, how long?			Age.	Offence.
		N.	K.	Less than a Year.	1 Year and not 5.	5 Years and upwards.		
1863.								
June 4	John Smith .....	N.	—	—	—	—	20	{ Attempting to pick pockets Stealing coal ,, lead ,, boots
,, 10	Samuel Jones .....	—	K.	10 mo.	—	—	18	
,, 14	Isaac Williams .....	—	K.	—	2 yrs.	—	24	
,, 20	William Green .....	—	K.	—	—	7 yrs.	32	

Note.—The above are summary convictions. The same column

It would have been well, when in committee, to have moved the adoption of an additional column for any "alias" that might be ascertained to have been assumed; but this may be done hereafter.

Should the example of Gloucestershire be followed by other counties, it will be an approach to the more perfect records which have been kept in France since 1851, where we are assured that the police find them "one of the most valuable and ready modes of obtaining information."\*

One of the practical advantages of the returns under the "Juvenile Offenders" and "Criminal Justice" Acts has been, that

\* "Compte Rendu de la Deuxième Session du Congrès International," p. 86.

a comparison of sentences, in different petty sessional divisions, has led to that greater uniformity of punishment which is important in order to prevent its being a lottery ; but the great object of the more extensive movement now referred to is to prevent a mistaken treatment of old offenders, and to afford that knowledge of the criminal classes, which is so necessary a guide, whether they are to be punished or reclaimed.

It is essential that the returns should be adopted by every county in the kingdom, and this makes it more desirable that the subject should again be noticed in the *Statistical Journal*. To make them uniform or general some legislative or official influence may be required.

The only objection I have seen urged against such a system of registration arises out of consideration for the convict himself. It is contended, that after he has suffered the penalty of his crime, it would be unjust to brand him with the additional disgrace of appearing on such a record. This is scarcely the place for inquiring how far such feelings should extend. It must be remembered, however,

in the County of Gloucester.

Term of Imprisonment.	Convicted Before, and how Often.		Description.				
	Of Felony.	Of Misdemeanor.	Height.	Hair.	Eyes.	Complexion.	Other Marks (if any).
			ft. in.				
1 month	—	—	5 9	brown	grey	sallow	{ Scar on little finger of left hand
6 weeks	once	—	5 8	black	dark	dark	None
4 days	—	—	5 8½	light	grey	fresh	Mole on left neck
2 months	—	twice	5 10	grey	„	ruddy	Blind right eye

will be used for convictions at the sessions and assizes.

that the proposed returns are intended only for judiciary purposes, and will not be made accessible to idle or malevolent curiosity.

II.—Spanish Post Office Returns, 1847-62.

THE following statistics of the Spanish post office are derived from official sources ;\* we are indebted to Mr. Hendriks for their arrangement in the present form.

\* Vide Revista Peninsular Ultramarina de Caminos de Hierro, Telégrafos, Navegacion é Industria, Nos. 355 and 357 (1863); also the Revista General de



“ Statistics of letters which passed through the Spanish post office in the year 1862 :—

Home correspondence .....	{ Private letters .....	53,961,752
	{ Official „ .....	4,165,175
		<hr/>
		58,126,927
Colonial correspondence .....		2,214,440
Foreign „ .....		3,118,516
		<hr/>
Total .....		63,459,883
		<hr/>

“ Increase in the number of letters, year 1862 compared with year 1861 :—

Home correspondence .....	2,749,195
Official „ .....	793,658
Colonial „ .....	325,532
Foreign „ .....	143,636
	<hr/>
Total .....	4,012,021*
	<hr/>

“ The following table shows the total number of letters, exclusive of official letters, from 1847 to 1862, with the proportion to each inhabitant, from 1847 to 1862 :—

Years.	Number of Letters.	Proportion of Letters to each Inhabitant.
1847 .....	19,782,714	} 1'35
'48 .....	20,201,208	
'49 .....	20,374,503	
'50 .....	20,488,472	
'51 .....	20,776,096	
1852 .....	21,965,511	} 1'73
'53 .....	23,221,582	
'54 .....	25,235,889	
'55 .....	28,838,032	
'56 .....	30,241,473	
1857 .....	35,583,001	2'30
'58 .....	37,708,583	2'44
'59 .....	44,045,059	2'85
'60 .....	50,590,936	3'23
'61 .....	56,055,001	3'58
'62 .....	59,294,708	3'78

“ This increase is due not only to the growing prosperity of Spain, but to the improvements introduced of late years into the postal service, and notably to the reduction of the rates of postage in 1854.

“ On comparing these with English statistics, it will be found that the number

*Estadística*, article by Don J. Jimeno Agius, “ *Datos estadísticos sobre correos* ” (June, 1863).

\* The *Revista Peninsular* gives 5,012,021 as the number,—evidently a typographical error.

of letters passed through the Spanish post office in 1862 is about equal to the number delivered in England and Wales (exclusive of franks) in the year 1839, that is, just prior to the postal reform.\* The number of letters delivered during the year 1862 was as follows:—

	Number of Letters.	Proportion of Letters to each Inhabitant.
England and Wales ...	497,031,000	24
Ireland .....	51,060,000	9
Scotland .....	57,380,000	19
Total, United Kingdom	605,471,000	21

“ The postal circulation, *comparatively with population*, is therefore about five and a half times as great in the United Kingdom as in Spain. The absolute number of letters is about ten times as great. The net postal revenue in Spain cannot be ascertained from the returns, but the gross revenue is not one-tenth of the corresponding result in the United Kingdom. The latter, for 1862, amounted to 3,646,889*l.*, whilst the Spanish gross receipts were only 34,952,242 *reals*. The increase from previous years was, however, considerable. In 1840 the gross revenue from the post office was only 15,533,636 *reals*; in 1853, 25,502,942. Comparing the gross revenue with the gross absolute number of letters, it does not appear that, on the average, the postage per letter is higher in Spain than in the United Kingdom.”

\* The total for England and Wales in 1839 was 59,983,000; for Ireland, 8,302,000; for Scotland, 7,623,000. The estimated number of franks in the same year was 6,563,000. The following is the Postmaster-General’s statement for 1839-62:—

Period.	Totals for Great Britain and Ireland, 1839-62.	Increase per Cent. per Annum.
1839 (including franks) .....	82,471,000	—
'40 (postal reform, and franks } abolished) .....	168,768,000	122¼
'41-45 (average of 5 years) .....	227,777,000	10
'46-50        "       5       " .....	327,006,000	5
'51-55        "       5       " .....	410,166,000	5¾
'55-60        "       5       " .....	522,898,000	4¼
'61   (1 year) .....	593,240,000	5¼
'62   (1   " ) .....	606,471,000	2

III.—Coventry Freehold Land Society.

MR. C. HOLTE BRACEBRIDGE read before Section (F) of the British Association, at the recent meeting at Newcastle, a paper upon the working

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of a freehold land society at Coventry. The statistical notes which formed the principal part of Mr. Bracebridge's communication, are printed hereunder :—

*Statistical Notes.*

Date of commencement of society, 1848.

Date of final settlement, except as to sums together of less than 100*l.* in the aggregate, 1863.

Number of allotments, 1,108

„ (besides roads, &c.) to each acre, 10.

	£	s.	d.
Price of allotment originally (viz., cost of land) ....	16	10	9
„ charging all improvements.....	33	6	6
Total cost of land .....	18,252	18	6
„ improvements, roads, culverts, &c. ....	18,468	4	5
Weekly contribution per share.....	—	1	6

“ The roads are laid out 30 to 40 feet wide, well-formed, with deep foundation, and macadamized, with culverts and pipe-tile drains, levels being left for gas and water pipes, both of which have been subsequently introduced at Earlsdon and some of the other estates. On each estate the general outfall is attended to. With a small exception, all the land is above level of the general building sites of the town, from 10 feet above the river (of the Sherborn) level, to 40 feet summit level, which is shown by the old water works reservoir on one side the city, and on the other side by the great plateau of Earlsdon, 2 feet below which lies that estate.

“ By an agreement with the society's solicitor, the legal expenses on each allotment are reduced to 3*2s.* The original title deeds are referred to in each title, and are deposited in the mayor's chest. The whole amount withdrawn from the society by subscribers, is 2,651*l.* 14*s.* 6*d.* The allotments were offered to each subscriber according to the date of his subscription, and on refusal of the senior subscriber, were balloted for. The weekly contributions of 1*s.* 6*d.* per share, were continued until two-thirds of the price was paid up, when each shareholder received his title deed, with the option of leaving the remainder as a mortgage. About two-thirds of the members mortgaged their share, but ten only remain unpaid at present, the unpaid mortgages being on twenty-five shares, and the whole amount owing less than 100*l.*

“ The corporation have opened streets for communication between these estates and the heart of the city.

“ *The Buildings.*—The houses built upon the land are probably in the proportion of two-thirds, the result of the operations of a building society, which is totally distinct from the land society. Every member has been free to build as he pleased upon his own allotment, excepting that in the agreement of sale he was bound to leave about 25 feet in the rear of the house not built upon, so that each allotment has been a parallelogram, containing one-tenth of an acre, having the small end towards the road, and a garden behind the house, thereby securing many sanitary objects as well as privacy. All streets and buildings have been approved by the Board of Health.

“ The statistics of the cost of the land and of its proportion for building purposes; of the number of allotments, and of the estimated value of the houses erected therein, are shown by the subjoined table :—

Names of Estates, &c.	Distance		Cost of Land.	Cost of Streets, Culverts, &c.	Total Cost.	Number of Lots.	Average Number of Yards.	Number of Houses Erected.	Population.	Estimated Value of Houses.
	From City Boundary.	From the Centre of Town.								
	Miles.	Miles.	£	£	£					£
Geoffrey Wood's } Cross ..... } 2½ acres, purchased 1849 (about 140l. per acre).	within	¼	385	283	668	29	450	28	126	4,150
Stoke estate ..... 49½ acres, purchased 1850 (about 88l. per acre).	¼	1¼	4,400	3,681	8,081	256	800	125	562	15,480
Earlsdon ..... 30½ acres, purchased 1852 (about 130l. per acre).	¼	1¼	4,000	3,705	7,705	250	500	104	477	21,235
Lant's ..... 9 A. 30 P., purchased 1852 (about 350l. per acre).	within	¼	3,220	2,323	5,543	190	200	175	787	24,150
Smith's ..... 2 A. 2 R. 32 P. pur- chased 1852 (about 240l. per acre).	within	¼	655	660	1,315	42	200	108	486	11,650
Spittalmoor ..... 15 A. 2 R. 10 P., pur- chased 1855 (about 360l. per acre).	within	⅛	5,593	7,816	13,409	341	200	198	891	39,210
Total area ..... 110 A. 1 R. 32 P., at about 165l. per acre	—	—	18,253	18,468	36,721	1,108	—	740	3,329	115,875

#### IV.—The Price of a Quartern Loaf.

THE following letter, signed “Mark Lane,” appeared in the *Times* of the 28th October last. It is important as showing the relative price of wheat, flour, and bread:—

“Sir,—A little explanation from a practical man, neither miller nor baker, may be of service in enlightening your readers as to the real facts of the ‘price of bread’ question, which recent letters in the *Times* have rather obscured than elucidated.

“Let us first deal with the miller. Excellent red English wheat of the last crop, weighing 63 lbs. and over per imperial bushel, is now selling in London at 40s. per quarter. New wheat alone, however, will not make satisfactory bread, and a certain proportion, varying in different seasons, of old or foreign, must be used to mix with it. This costs higher than the other, and at the present time a perfectly satisfactory ‘grist,’ or mixture of red wheat, cannot be bought to stand less than 43s. per quarter all round in the mill. This will make as good flour as any man need wish, but if superior colour be required, the finest white wheat, English and foreign, must be employed in greater or less proportion, so that the very best mixture used by the first or top price millers, as they are called, would stand them to-day 50s. per quarter in the mill.

“Assuming, then, the wheat to cost the miller 43s. and 50s. respectively, he can afford to deliver the flour into the baker’s shop at 32s. and 37s. cash per sack



of 280 lbs. net, and make a fair working profit. Good coloured and wholesome flour may now be had from country millers under 30s. per sack, and a great deal of it is used in London; but to make bread to please the Londoner, the baker must mix with it American or other flour containing foreign wheat, and it may be assumed that few good bakers are now using flour costing them on the average less than the 32s. per sack above referred to. We have now got the flour to the baker's shop, and find it costs him from 32s. to 37s. per sack. To make it into bread and leave him a fair profit, we must allow him 10s. per sack, which will raise the above prices to 42s. and 47s. Let us see how much he should charge for the loaf.

"A sack of flour of good strong quality will produce about 94 4-lb. loaves of pure bread, or, in other words, 3 lbs. of flour will absorb sufficient water to make 4 lbs. of bread. The baker, it is well known, uses a great many potatoes; but at the present low price of flour the saving is not great, and we will leave it out of the account. Our sum now stands thus:—42s. and 47s.  $\div$  94 =  $5\frac{3}{8}d.$  (nearly) and  $6d.$  respectively; so that at present prices the baker can sell the 4-lb. loaf at prices varying from  $5\frac{3}{8}d.$  for good, to  $6d.$  for the very best bread, with fair profit to himself. Now, in these calculations cash prices have been assumed, and the disturbing element of bad debts left out of the account. The London bakers, however, are for the most part men of no capital, and no small percentage of them fail annually. Few of them can pay cash to the miller, and therefore where he gives credit you must allow him to charge from 1s. to 3s. per sack additional, according to the presumed solvency of his buyer, as an insurance fund against bad debts, and to pay loss of interest. Then, again, the baker, if he has to run accounts with his customers, as is usual in the better neighbourhoods, must have an additional price to pay his loss of interest and to protect him from bad debts.

"At the present moment in all the more populous parts of London, where competition is active, excellent bread (I use the word relatively, as will be seen below) may be bought at  $5d.$  to  $5\frac{1}{2}d.$  (per 4 lbs. weighed off) across the counter for cash. If the above figures are correct, no one can say that these prices are too high.

"In the more fashionable quarters, and in some of the suburbs where there is not much competition, the best bread is charged  $7\frac{1}{2}d.$  delivered at the house, credit being given for from one week to six and even twelve months. Nevertheless,  $7\frac{1}{2}d.$  is too high, and to customers paying within a month the very best bread should not anywhere exceed  $6\frac{1}{2}d.$  or  $6\frac{3}{4}d.$

"On the whole, there is not much reason to complain. The poor man buys his bread as cheap, in proportion to the price of wheat, as anywhere in the world; and if the rich are mulcted of  $\frac{1}{2}d.$  or  $\frac{3}{4}d.$  per loaf, it is their own fault, and is the result of their indifference. The London bakers, as a body, are very hardworking men, and the few rich among them is a proof that their profits are not exorbitant. The London millers, as a body, though always grumbling, are well-to-do, but there is sufficient competition among themselves and from foreign flour to prevent their unduly raising prices.

"In some parts of the Continent the Government interferes to fix the price of bread, and some shortsighted people advocate the establishment of the system here. The French, however, have found the evil of this plan, and have just abandoned it. The true principle in this, as in all trade matters, is *laissez faire*. Competition and the supervision of a free press and intelligent public are the best safeguards against overcharges.

"Before concluding let me add that, with the greatest variety and the finest qualities of wheat in the world always obtainable in the London market, so bad is our system of *punification* that the London bread is inferior to that of any large city of Europe. Let the public learn what good bread is, call for it, and rely upon it, it will soon be forthcoming."

The second letter also appeared in the *Times* on the same day; it is from a London Baker, and, so far as it goes, corroborates the statements in the first communication:—

"Sir,—Your correspondent of Devizes may be correct in his information that

the contractor for the Pewsey union is only charging  $4\frac{1}{4}d.$  per 4-lb. loaf for excellent bread, but if he is so, many of us poor London bakers would like to buy our flour from the same source. As an instance, I am paying from 34s. to 38s. 6d. for flour, per 280 lbs., and the usual expectation is to make about 95 4-lb. loaves per sack. Sometimes it will produce a little more—that is if the flour has been ground from good dry wheats—but occasionally only 94, or even less may be nearer the truth; however, say 95 as an average, and allow 6s. per sack to pay for manufacture, as rent, taxes, gas, coals, men's wages, waste, &c., making with the flour, say 42s. 6d., or nearly  $5\frac{1}{2}d.$  per 4-lb. loaf. Now, in all the lower districts of London  $5d.$  to  $5\frac{1}{2}d.$  is the price, and unless a man can bake at least twenty sacks per week, he will get no more than journeyman's wages at that price. As to Belgravia, I can quite understand  $1\frac{1}{2}d.$  or  $2d.$  per loaf increase being demanded for keeping books, credit being the bane of high quarters. Some people think the baker is impertinent if he asks for money under six or twelve months. There is no doubt, bakers can sell good well-made bread at  $5\frac{1}{2}d.$  now for cash over the counter."

A Regent Street Baker replied to the letter of "Mark Lane." The principal passage bearing upon the price of bread in London is here given:—

"Again, Sir, 94 loaves is allowed by 'Mark Lane' as the return of a sack of flour. I admit he is not very wide of the mark in that, but from the same source as I gathered the expenses, I found that 93 was the produce; but we can never sell the 93 at full price, as some are split, burnt, &c. Take the amount at 91, we have then 91 at  $7\frac{1}{2}d.$  Flour 41s. 6d. (*plus* potatoes), leaving 15s. 6d. per sack, 6d. less than the lord mayor used to allow, and I at once admit that our profits, such as they are, are now better than they have been for years; but we could not sell at 7d. From a printed statement now before me, dated 1813, the price fixed by law, with flour at 40s., is  $7\frac{1}{2}d.$ "

This writer observed that in his own case he used 36 lbs. of potatoes to 1,680 lbs. of flour, or six sacks.

The assize of wheaten bread, as fixed according to the price of wheat by 53rd Geo. III, cap. 116, is stated hereunder.

Wheat, per Quarter.		Quartern Loaf to Weigh 4 lbs. $5\frac{1}{2}$ oz.	Wheat, per Quarter.		Quartern Loaf to Weigh 4 lbs. $5\frac{1}{2}$ oz.
s.	d.	d.	s.	d.	s. d.
39	8	7	69	8	— $10\frac{3}{4}$
41	8	$7\frac{1}{4}$	71	8	— 11
43	8	$7\frac{1}{2}$	73	8	— $11\frac{1}{4}$
45	8	$7\frac{3}{4}$	75	8	— $11\frac{1}{2}$
47	8	8	77	8	— $11\frac{3}{4}$
49	8	$8\frac{1}{4}$	79	8	I —
51	8	$8\frac{1}{2}$	81	—	I $-\frac{1}{4}$
53	8	$8\frac{3}{4}$	83	—	I $-\frac{1}{2}$
55	8	9	85	—	I $-\frac{3}{4}$
57	8	$9\frac{1}{4}$	87	—	I I
59	8	$9\frac{1}{2}$	89	—	I $1\frac{1}{4}$
61	8	$9\frac{3}{4}$	91	—	I $1\frac{1}{2}$
63	8	10	93	—	I $1\frac{3}{4}$
65	8	$10\frac{1}{4}$	95	—	I 2
67	8	$10\frac{1}{2}$	97	—	I $2\frac{1}{4}$



## MARRIAGES, BIRTHS, AND DEATHS IN GREAT BRITAIN.

## No. I.—ENGLAND AND WALES.

MARRIAGES IN THE QUARTER ENDED 30TH JUNE, 1863; AND  
BIRTHS AND DEATHS IN THE QUARTER ENDED  
30TH SEPTEMBER, 1863.

AFTER a season of depression which extended over two years the marriage-rate rallied in the first quarter of the current year, and rose decidedly above the average in the subsequent quarter. The improvement indicates increased confidence in the minds of the people, in respect to their ability to earn a sufficient and comfortable subsistence. The births were more numerous than they had ever been in the summer quarter before; and the proportion they bore to the population in which they occurred was higher than usual. But while the aspect of the returns is favourable as regards marriages and births, a tale of deaths, which is heavier than that of any summer quarter since the year of epidemic cholera, 1854, shows that the public health was far from being in a satisfactory state. The death-rate was considerably higher than it had been in any of the corresponding quarters that have intervened since 1854. Epidemic diseases spread with destructive force amongst the young; and apparently the season was less salubrious than it usually is to older persons.

ENGLAND :—MARRIAGES, BIRTHS, and DEATHS, *returned in the Years*  
1857-63, and in the QUARTERS of those Years.

*Calendar YEARS, 1857-63 :—Numbers.*

Years .....	'63.	'62.	'61.	'60.	'59.	'58.	'57.
Marriages No.	—	163,991	163,706	170,156	167,723	156,070	159,097
Births..... ,	—	711,691	696,406	684,048	689,881	655,481	663,071
Deaths..... ,	—	436,514	435,114	422,721	440,781	449,656	419,815

*QUARTERS of each Calendar Year, 1857-63.*

(I.) MARRIAGES :—*Numbers.*

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	35,454	33,976	33,274	35,150	35,382	29,918	33,321
June ..... ,	44,058	40,771	42 012	43,777	42,042	39,890	41,267
Septmbr..... ,	—	40,585	39,884	40,541	39,803	38,599	38,669
Decmbr. .... ,	—	48,659	48,536	50,688	50,496	47,663	45,840

## QUARTERS of each Calendar Year, 1857-63.

## (II.) BIRTHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	186,653	182,005	172,933	183,180	175,532	170,959	170,430
June ..... ,	189,611	185,638	184,820	174,028	175,864	169,115	170,444
Septmbr. .... ,	173,125	172,237	172,033	164,121	168,394	157,445	161,181
Decmbr. .... ,	—	171,811	166,620	162,719	170,091	157,962	161,016

## (III.) DEATHS:—Numbers.

<i>Qrs. ended last day of</i>	'63.	'62.	'61.	'60.	'59.	'58.	'57.
March .....No.	128,524	122,192	121,215	122,617	121,580	125,819	108,665
June ..... ,	118,375	107,555	107,558	110,869	105,631	107,142	100,046
Septmbr. .... ,	112,384	92,225	101,232	86,312	104,216	98,142	100,528
Decmbr. .... ,	—	114,542	105,109	102,923	109,354	118,553	110,576

MARRIAGES.—The number of persons married in the June quarter was 88,116; they were married at an annual rate of 1·72 to a hundred persons in the population. The average rate for the same quarter is 1·69 per cent. In the two corresponding quarters of 1861-62 the rates were 1·68 and 1·61. A certain number of the prospective alliances of those two years, deferred in expectation of better times, would doubtless attain their consummation in the present year.

The number of marriages was 44,058, against 42,012 and 40,771 in the corresponding quarters respectively of 1861-62. In London and in all the groups of counties into which England is divided in the tabular arrangement, the marriages were more numerous than they had previously been in the June quarter of 1862. In London they rose from 7,198 to 7,790; in the South-eastern counties from 3,324 to 3,657; in the West Midland from 4,944 to 5,362; in the North Midland from 2,645 to 2,811; in the North-western, which embrace Cheshire and Lancashire, from 6,401 to 7,000; in Yorkshire from 4,161 to 4,532; in Monmouthshire and Wales from 2,454 to 2,796. Of forty English counties only five appear in which there was a decrease; these were Kent, Northamptonshire, Devonshire, Cornwall, and Shropshire. Many of the districts of which the counties consist are unimportant in numbers; and not a few, more or less important, might be cited, which exhibit a decrease; but increase is the rule, and as such tends to show that the view which the marriageable part of the community were enabled to take of their position was on the whole satisfactory to themselves.

Liverpool and its neighbouring districts Birkenhead and West Derby mainly contributed to that improvement which is manifested in the marriage registers of the North-western division. In those three districts the marriages in the June quarter of 1862 were 1,534; in that of 1863 they were 1,756. In Manchester and Salford together they were 1,202 and 1,337; in Ashton 219 and 259; in Blackburn 200 and 269; in Preston 213 and 240. The district of Stockport exhibits a decrease; and there are others, in the seat of the cotton manufacture, which, if they show little decrease in the marriages, were not able to furnish an increase. In such localities, as in others, it is probable that occupation was partially restored and distress alleviated; but the movement of young men and women in quest of work was sufficient to depress the marriage returns more than it did in other districts.



ENGLAND:—*Annual Rates per Cent. of PERSONS MARRIED, BIRTHS, and DEATHS, during the YEARS 1857-63, and the QUARTERS of those Years.*

*Calendar YEARS, 1857-63:—General Percentage Results.*

YEARS .....	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
Estmtd. Popln. of England in thousands in middle of each Year....	20,554	—	20,337	20,119	19,903	19,687	19,471	19,257
Persons Married Perct. }	—	1·670	1·612	1·628	1·710	1·704	1·604	1·652
Births .... ,	—	3·427	3·500	3·461	3·437	3·504	3·366	3·443
Deaths.... ,	—	2·211	2·146	2·163	2·124	2·239	2·309	2·180

*QUARTERS of each Calendar Year, 1857-63.*

(I.) PERSONS MARRIED:—*Percentages.*

<i>Qrs. ended last day of</i>	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	1·404	1·394	1·360	1·346	1·422	1·464	1·252	1·410
June..... ,	1·722	1·693	1·610	1·678	1·766	1·716	1·646	1·722
Septmbr. ,	—	1·607	1·582	1·570	1·614	1·602	1·570	1·592
Decmbr. ,	—	1·975	1·890	1·906	2·012	2·026	1·934	1·880

(II.) BIRTHS:—*Percentages.*

<i>Qrs. ended last day of</i>	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	3·698	3·594	3·644	3·500	3·707	3·631	3·576	3·604
June .... ,	3·705	3·587	3·666	3·690	3·512	3·588	3·488	3·555
Septmbr. ,	3·337	3·292	3·356	3·388	3·267	3·389	3·204	3·316
Decmbr. ,	—	3·236	3·338	3·272	3·230	3·414	3·205	3·304

(III.) DEATHS:—*Percentages.*

<i>Qrs. ended last day of</i>	'63.	Mean '53-'62.	'62.	'61.	'60.	'59.	'58.	'57.
March....Per ct.	2·546	2·498	2·447	2·453	2·481	2·515	2·631	2·298
June..... ,	2·313	2·191	2·124	2·147	2·237	2·155	2·210	2·087
Septmbr. ,	2·166	1·982	1·797	1·994	1·718	2·097	1·997	2·068
Decmbr. ,	—	2·178	2·226	2·064	2·043	2·195	2·406	2·269

**BIRTHS.**—The annual birth-rate in the summer quarter (July, August, September) was 3·34 per cent., against an average of 3·29. The total number of births was 173,125; in the same quarter of 1853 the number was 147,602. That part of the English nation from which the natural supply of population is drawn has so far increased in ten years as to produce more children by 25,523 than it did in a similar period in 1853.

The births registered in London were 24,254. The four Northern counties, with their population of less than 1,200,000, as returned at last census, registered as many births (11,200) as Monmouthshire and Wales, with a population exceeding 1,300,000. In all the eleven divisions, with only a few considerable exceptions, the births were more numerous than they had been in either of the two previous corresponding quarters. There was a decrease on the mean of those quarters in the Eastern counties amounting to 2·8 per cent.; in the North Midland to 2·3 per cent.; and in the North-western (Cheshire and Lancashire) amounting to 3·4 per cent.

**INCREASE OF POPULATION.**—As the births were 173,125 and the deaths 112,384, the natural increase of the population was 60,741. The increase was at the rate of 660 daily.

The number of emigrants who left ports in the United Kingdom at which there are Government emigration officers was 58,320 in the quarter, of whom 20,008 were of English origin.\* 36,496 were bound for the United States; 6,538 for the North American colonies; 14,075 for the Australian colonies; and 1,211 for other places. The emigration was greater than it had been in any September quarter since 1854, and nearly three times as great as it was in that of 1861. There was an increase in the emigration to Canada and Australia, but it was insignificant as compared with the extraordinary result which the temptation of employment with high wages in the United States has produced by stimulating the movement, chiefly of the Irish people, to that country. But the temptation does not appear to operate on the Scottish mind, for it deserves to be noted, that while 2,059 emigrants sailed from ports in Scotland for British North America, and 1,224 for the Australian colonies, none went to the United States. Nor was there any emigration to the country last mentioned from Scotch ports in the September quarter of 1862; and there was almost none in that of 1861. It has declined since 1851, when in the corresponding three months it embraced 2,854 persons.

**PRICES, PAUPERISM, AND THE WEATHER.**—Wheat and potatoes were both cheap; the latter esculent ranged for the best quality from 70s. to 105s. per ton at the waterside market, Southwark, a price which is lower than what has been obtained at the same place at any previous time since the September quarter of 1859. The average price of wheat was 45s. 7d. per quarter, which is less than at any other time since March 1860; it has been falling during the last eighteen months. The average price of the better and worse qualities of beef sold by the carcase in the city markets was 5 $\frac{3}{8}$ d. per lb.; that of mutton, 5 $\frac{3}{4}$ d.

The following figures show the average number of paupers relieved on the last day of each week in the last three summer quarters:—

September quarter, 1861 .....	In-door, 112,932 .....	Out-door, 693,649
'62 .....	"      119,592 .....	"      789,914
'63 .....	"      120,189 .....	"      819,795

This statement exhibits an increase in the present year, which arises from the circumstance that many recipients of relief in the distressed manufacturing districts have been transferred from the local committees to boards of guardians, and have

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\* Return with which the Registrar-General has been favoured by the Emigration Commissioners: the number returned as of English origin was 17,758, while the birthplace of 6,559 emigrants was not distinguished; in the above statement a proportional number of these has been added to those returned as of English origin.



thus prevented that decrease in the above returns of pauperism which the improvement in the condition of those districts would otherwise have effected. The number of poor persons relieved out-door by the guardians in the cotton districts in the three months ending 30th September, 1863, was 398,988. In administering relief to 148,228 of that number the boards were aided by the local committees.

CONSOLS, PROVISIONS, PAUPERISM, and TEMPERATURE, in each of the Nine  
QUARTERS ending 30th September, 1863.

1	2	3	4		5	6	7		8	9
Quarters ending	Average Price of Consols (for Money).	Average Price of Wheat per Quarter in England and Wales.	Average Prices of Meat per lb. at Leadenhall and Newgate Markets (by the Carcase), with the <i>Mean</i> Prices.		Average Prices of Potatoes (York Regents) per Ton at Waterside Market, Southwark.	Pauperism.		Mean Tem- pera- ture.		
						Quarterly Average of the Number of Paupers relieved on the <i>last day</i> of each week.				
			Beef.	Mutton.		In-door.	Out-door.			
1861	£	s. d.	d. d. d.	d. d. d.	s. s. s.					
30 Sept.	91 $\frac{3}{8}$	52 1	4 $\frac{1}{4}$ —6 $\frac{1}{2}$ 5 $\frac{3}{8}$	4 $\frac{7}{8}$ —7 5 $\frac{7}{8}$	85—110 97	112,932	693,649	60·4		
31 Dec.	93 $\frac{2}{8}$	59 3	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	4 $\frac{3}{4}$ —6 $\frac{3}{4}$ 5 $\frac{3}{4}$	110—130 120	128,533	716,096	45·5		
1862										
31 Mar.	93 $\frac{1}{8}$	60 1	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	4 $\frac{3}{4}$ —6 $\frac{1}{2}$ 5 $\frac{5}{8}$	130—155 142	143,926	804,272	41·1		
30 June	93 $\frac{6}{8}$	56 8	4—6 5	5—7 6	180—200 190	127,863	781,858	53·3		
30 Sept.	93 $\frac{2}{8}$	56 10	4 $\frac{1}{4}$ —6 $\frac{1}{4}$ 5 $\frac{1}{4}$	5 $\frac{1}{4}$ —7 6 $\frac{1}{8}$	100—130 115	119,592	789,914	58·7		
31 Dec.	93 $\frac{5}{8}$	48 2	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	5 $\frac{1}{4}$ —6 $\frac{3}{4}$ 6	90—110 100	132,663	907,493	45·0		
1863										
31 Mar.	92 $\frac{4}{8}$	46 7	4—6 $\frac{1}{4}$ 5 $\frac{1}{8}$	5—7 6	120—130 125	143,661	948,212	42·6		
30 June	93 $\frac{1}{8}$	46 2	4 $\frac{1}{4}$ —6 $\frac{1}{4}$ 5 $\frac{1}{4}$	4 $\frac{3}{4}$ —6 $\frac{3}{4}$ 5 $\frac{3}{4}$	110—130 120	127,852	879,241	53·0		
30 Sept.	93	45 7	4 $\frac{1}{2}$ —6 $\frac{1}{4}$ 5 $\frac{3}{8}$	4 $\frac{3}{4}$ —6 $\frac{3}{4}$ 5 $\frac{3}{4}$	70—105 87	120,189	819,795	58·8		

Col. 6 is deduced from the Weekly Tables published in the *Economist*. The average of the highest and of the lowest weekly prices is here shown in cols. 4, 5, and 6, and not the absolute highest or lowest price quoted at any period of the quarter.

Cols. 7 and 8 are deduced from the Returns of the Poor Law Board. The Returns now relate to 655 Unions, &c., comprising a population of 19,885,921 (in 1861), and do not include the paupers of parishes, &c., incorporated under Gilbert's Act, or still under the 43rd Elizabeth; Lunatic Paupers in Asylums and Vagrants relieved in the above Unions are also excluded. They amounted on January 1st, 1860, to—Insane Persons, 31,554; Vagrants, 1,542. The rest of the paupers on that day amounted to 817,800.

The weather in the quarter, as observed and described by Mr. Glaisher at Greenwich, was characterised by alternations of heat and cold till the middle of the

period, and by cold attended with much wet during the last six weeks, circumstances which could hardly fail injuriously to affect the public health. From the beginning till the middle of July, the mean temperature of the air exceeded the average by two degrees; thereafter to the end of the month it was below the average nearly four degrees. Heat followed in the first fortnight of August, three degrees and a-half in excess. For the remaining portion of the three months there was an almost daily defect of about two degrees in the temperature. The mean temperature of the whole period was  $58.8^{\circ}$ , which is about one degree below the average. The amount of rain measured was six inches, which is nearly two inches less than the average; but half of it fell in September, which was a moist month, when the two months which preceded it had been dry. Both days and nights in the earlier half of August were warm, but in September both were cold. Though the weather has been less favourable to health than it was in previous summers, the report of the registrar of Preston may be quoted here, for it is applicable to other districts besides his own:—"The bountiful harvest which we have had, and the abundant crop of potatoes, will be an invaluable blessing, and will greatly assist in mitigating the sufferings of the working classes during the winter."

**DEATHS; AND THE STATE OF THE PUBLIC HEALTH.**—The total number of deaths in the last quarter was 112,384, against 101,232 and 92,225 respectively in the two previous summer quarters. In the same period of 1860 the number was only 86,312, and if last summer had been as healthy, it may be stated in round numbers that at least 23,000 persons would have been living when autumn came whose names were enrolled in the registers.

The increase of deaths on the mean of two previous corresponding quarters (1861-62) was equal to 12.7 per cent. in London, 15.2 per cent. in the South-eastern counties, 21.6 in the South Midland, 13.9 in the Eastern, 18.6 in the South-western, 19.3 in the West Midland, 16.6 in the North Midland, 14.8 in the North-western (Cheshire and Lancashire), 21 in Yorkshire, 17.8 in the Northern counties, and 7.3 in Monmouthshire and Wales. Hence it appears that the increase was least in Monmouthshire and Wales, greatest in the South Midland counties and Yorkshire; and that in the Metropolis, in the Eastern and South-eastern counties, and in the districts of the cotton manufacture, it was from 13 to 15 per cent. The unfavourable influences that were at work pervaded the country generally, and Lancashire did not suffer more than most parts, but less than some. When the central committee for the relief of the distressed districts state in their report (19th October), written some weeks after the complaints that prevail chiefly in the warm season have subsided, that "the health of the population is generally in a satisfactory condition," probably nothing more is implied than that the families of the operatives are as healthy as they usually are in October, though they may not yet have attained that measure of health which it is hoped the sanitary works that are to be begun or are already in progress will confer upon them.

Scarlatina and diarrhoea, widely diffused over the country, were the chief immediate causes from which the increase of mortality sprang. The deaths rose to 2.166 per cent. per annum, against the average summer rate of 1.982. In the Eastern and North Midland counties the death-rate was rather below the average of England; in London it rose to 2.325; in Cheshire and Lancashire it was 2.431; in Yorkshire, 2.446. That great division, which contains the districts of the cotton manufacture, has always asserted a bad pre-eminence in the tables of mortality; but notwithstanding the distress that still prevails, and the greater distress it has suffered, it will be seen that in the present returns it may be compared with Yorkshire without disadvantage. Its density of population is much greater than that of any other division, with the exception of London, and is more than double that of Yorkshire. Lately a certain number of the working population has removed, in what amount is unknown, and Yorkshire has doubtless gained part of that which Lancashire has lost; but this circumstance can hardly affect the comparison in any material degree.



**ANNUAL RATE of MORTALITY per Cent. in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1863-61.**

	Area in Statute Acres.	Population Enumerated.		Quarters ending	Annual Rate of Mortality per Cent. in each Quarter of the Years			
		1851.	1861.		1863.	Mean 53-62.	1862.	1861.
In 142 Districts, and 56 Sub-districts, comprising the <i>Chief Towns</i> .....	3,287,151	9,155,964	10,930,841	March	2·705	2·688	2·661	2·658
				June....	2·478	2·336	2·265	2·271
				Sept. ..	2·404	2·239	1·977	2·193
				Dec. ....	—	2·454	2·512	2·291
				Year ....	—	2·429	2·354	2·353
In the remaining Districts and Sub- districts of Eng- land and Wales, comprising chiefly <i>Small Towns</i> and <i>Country Parishes</i> }	34,037,732	8,771,645	9,135,383	Year ....	—	1·970	1·894	1·938
				March	2·343	2·287	2·184	2·210
				June ..	2·192	2·031	1·949	1·999
				Sept. ..	1·864	1·694	1·573	1·753
				Dec. ....	—	1·866	1·870	1·790

*Note.*—The three months January, February, March, contain 90, in leap year 91 days; the three months April, May, June, 91 days; each of the last two quarters of the year 92 days. For this inequality a correction has been made in the calculations, also for the difference between 365 and 365·25 days, and 366 and 365·25 days in leap year.

The death-rate in the town districts of England was 2·404 per cent., against an average of 2·239. The mortality of the country districts was, as is usual, considerably less; but it was also much in excess of the summer average, for it rose to 1·864, against 1·694. It is obvious that cities are not the only haunts of those diseases that are propagated by foul air and bad water, and in homes of penury; nor are young rustics proof against the weather. In a thousand instances the water which town populations command within their houses, the countryman in the village or on the wild can only obtain with uncertainty and toil; his rations are meagre; his walls damp; the refuse-heaps are near his door, “for as a rule, no rubbish is removed, but waits patiently the action of mere natural chemistry;”\* and shut up many hours of the night with his family, he is deprived even of that which is supposed his inalienable birthright, the pure air, which invests his dwelling, and seeks on all sides, but in vain, to be admitted.

The deaths in Cumberland were 938 and 924 in the September quarter of 1861-62; they were in the last quarter 1,159, and exhibited an increase of 24 per cent. In the district of Carlisle they were in those three summer quarters 232, 209, 288; in Cockermouth, 195, 201, 218; in Whitehaven, 169, 192, and 297. In the Cockermouth district the mortality was 21 deaths to a thousand of the population; in Carlisle it rose to 25; and in Whitehaven it rose as high as 29. Measles, scarlatina, and whooping-cough have been prevalent in Carlisle; small-pox in Keswick, where there were 60 cases of the disease, and 5 fatal; and the same disease has prevailed in the town of Cockermouth. “Fever” was exceedingly fatal both in the town of Whitehaven and at St. Bees.

\* Thomas Carlyle, *Life of Sterling*.

ENGLAND: — MARRIAGES *Registered in Quarters ended 30th June, 1863-61; and BIRTHS and DEATHS in Quarters ended 30th September, 1863-61.*

1	2	3	4 5 6		
DIVISIONS. (England and Wales.)	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	MARRIAGES in Quarters ended 30th June,		
			'63.	'62.	'61.
ENGLD. & WALES.... Totals	37,324,883	No. 20,066,224	No. 44,058	No. 40,771	No. 42,012
I. London .....	77,997	2,803,989	7,790	7,198	6,916
II. South-Eastern .....	4,065,935	1,847,661	3,657	3,324	3,438
III. South Midland .....	3,201,290	1,295,497	2,092	1,989	1,984
IV. Eastern .....	3,214,099	1,142,580	1,661	1,548	1,690
V. South-Western .....	4,993,660	1,835,714	3,607	3,519	3,649
VI. West Midland .....	3,865,332	2,436,568	5,362	4,944	5,120
VII. North Midland .....	3,540,797	1,288,928	2,811	2,645	2,788
VIII. North-Western .....	2,000,227	2,935,540	7,000	6,401	7,055
IX. Yorkshire .....	3,654,636	2,015,541	4,532	4,161	4,130
X. Northern .....	3,492,322	1,151,372	2,750	2,588	2,726
XI. Monmthsh. & Wales	5,218,588	1,312,834	2,796	2,454	2,516

7	8	9	10	11	12	13
DIVISIONS. (England and Wales.)	BIRTHS in Quarters ended 30th September,			DEATHS in Quarters ended 30th September,		
	'63.	'62.	'61.	'63.	'62.	'61.
ENGLD. & WALES.... Totals	No. 173,125	No. 172,237	No. 172,033	No. 112,384	No. 92,225	No. 101,232
I. London .....	24,254	22,984	23,597	17,105	15,133	15,234
II. South-Eastern .....	14,877	13,992	14,343	9,080	7,368	8,400
III. South Midland .....	10,566	10,399	10,541	7,044	5,361	6,225
IV. Eastern .....	8,738	8,954	9,020	6,014	4,706	5,851
V. South-Western .....	14,426	14,165	14,390	8,738	7,142	7,593
VI. West Midland .....	21,566	21,472	21,528	13,152	10,619	11,434
VII. North Midland .....	10,862	11,155	11,072	6,908	5,332	6,511
VIII. North-Western .....	26,679	27,984	27,233	18,700	15,302	17,289
IX. Yorkshire .....	18,837	18,847	18,631	12,781	10,228	10,897
X. Northern .....	11,200	11,031	10,978	6,820	5,470	6,105
XI. Monmthsh. & Wales	11,120	11,254	10,700	6,042	5,564	5,693



## REMARKS ON THE WEATHER

DURING THE QUARTER ENDING 30TH SEPTEMBER, 1863.

*By JAMES GLAISHER, ESQ., F.R.S., &c., Sec. of the British Meteorological Society.*

From July 1st to 15th, excepting two days, the temperature of the air was in excess of the average to the amount of  $2^{\circ}\frac{1}{4}$ . A cold period followed, which continued till the 1st August, during which the average daily deficiency amounted to  $3^{\circ}\frac{3}{4}$ , and was then followed by a warm period extending till the 16th August, the excess of temperature amounting to  $3^{\circ}\frac{1}{2}$ . On 19th July the temperature fell to  $32^{\circ}$  in the air, and to much lower on the ground at most places north of London.

A generally cold period extended from the 17th August to the end of September, a period of 45 days, during which the daily deficiency amounted to  $2^{\circ}\frac{1}{4}$ .

The mean temperature of July was  $60^{\circ}\cdot 8$ , being higher than in 1862, when it was  $59^{\circ}\cdot 1$ , and lower than in 1861, when it was  $60^{\circ}\cdot 9$ .

The mean temperature of August was  $61^{\circ}\cdot 9$ , being higher than any August since 1858, excepting the years 1859 and 1861, which were  $63^{\circ}\cdot 5$  and  $63^{\circ}\cdot 2$  respectively.

The mean temperature of September was  $53^{\circ}\cdot 7$ , being lower than any September as far back as 1841, with the exception of 1845, when it was  $53^{\circ}\cdot 6$ , and 1860, when it was  $53^{\circ}\cdot 4$ .

*The mean high day temperature* in July was in excess to the amount of  $\frac{3}{4}^{\circ}$ , and in August to the amount of  $1^{\circ}$ ; in September it was  $4^{\circ}$  in defect.

*The mean low night temperature* in July was  $3^{\circ}\frac{3}{4}$  in defect; in August was  $\frac{1}{2}^{\circ}$  in excess; and in September was  $3^{\circ}$  in defect.

Therefore the days were warm in July and August, and the nights also in August; in September both the days and nights were cold.

*The mean temperature of the air* in July was  $\frac{3}{4}^{\circ}$  in defect; in August  $\frac{1}{2}^{\circ}$  in excess; and in September  $3^{\circ}\frac{1}{4}$  in defect.

*The mean temperature of the dew point* was in defect in each month of the quarter, to the amount of  $2^{\circ}$  in July,  $\frac{1}{2}^{\circ}$  in August, and  $4^{\circ}\frac{1}{4}$  in September.

*The degree of humidity* was also in defect during the quarter.

*The pressure of the atmosphere* was  $0\cdot 17$  inch in excess in July; and in defect in August and September to the respective amounts of  $0\cdot 05$  inch and  $0\cdot 13$  inch.

*The fall of rain* was  $0\cdot 9$  inch in July,  $1\cdot 8$  inch in August, and  $3\cdot 2$  inches in September; the total fall for the quarter was  $5\cdot 9$  inches, being  $1\cdot 6$  inch below the average of the preceding 47 years.

*The mean temperature of the air* at Greenwich in the three months ending August, constituting the three summer months, was  $60^{\circ}\cdot 3$ , being  $0^{\circ}\cdot 2$  above the average of the preceding 92 years.

1863. Months.	Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air— Daily Range.		Water of the Thames				
	Mean.	Diff. from Average of 92 Years.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.		Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.
July .....	60·8	0	0	55·9	0	51·7	0	24·9	0	66·1	In. ·384	In. -·032	Gr. 4·3	Gr. -0·3
Aug. ....	61·9	+1·2	+0·6	57·4	-0·2	53·6	-0·5	20·1	+0·6	65·5	·412	-·010	4·5	-0·2
Sept. ....	53·7	-2·7	-3·3	50·2	-3·7	46·8	-4·3	17·7	-0·8	61·7	·321	-·061	3·6	-0·6
Mean.....	58·8	-0·7	-1·1	54·5	-1·8	50·7	-2·3	20·9	+1·4	64·4	·372	-·034	4·1	-0·4

1863. Months.	Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.				
	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Mean.	Diff. from Average of 22 Years.	Amnt.	Diff. from Average of 47 Years.		Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.
										At or below 30°.	Between 30° and 40°.	Above 40°.		
July .....	72	— 4	In. 29·961	+·167	Gr. 532	+ 4	In. 0·9	In. —1·8	Miles. 147	1	8	22	28·4	53·2
Aug. ....	74	— 3	29·744	—·047	527	— 2	1·8	—0·6	248	0	1	30	37·2	57·5
Sept. ....	77	— 4	29·693	—·132	535	+ 1	3·2	+0·8	259	3	17	10	27·7	50·2
Mean.....	74	— 4	29·799	—·004	531	+ 1	Sum 5·9	Sum —1·6	Mean 219	Sum 4	Sum 26	Sum 62	Lowest 27·7	Highest 57·5

*Note.*—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.

*Thunder storms occurred or thunder was heard and lightning seen on July 2nd at Scarborough and Harrogate; on the 7th at Bradford, Stonyhurst, Scarborough, Otley, Thelwall, and at Eccles; on the 8th at Leeds; on the 21st at Bradford; on the 23rd at Bywell; and on the 24th at Norwich. On 1st August at Guernsey and Little Bridy; on the 2nd at Wisbeach; on the 3rd at Stonyhurst and Scarborough; on the 14th at St. Leonards and Exeter; on the 15th at Truro, St. Leonards, Exeter, and High Street, Exeter; on the 17th at Oxford; on the 19th at St. John's College, Aldershot, Great Berkhamstead, and Cardington; on the 24th at Guildhall; on the 25th at Truro, Little Bridy, Downside College, Battersea, Oxford, Great Berkhamstead, Royston, Cardington, Bradford, Grant-ham, Wakefield, York, Otley, Bywell, and Wisbeach; on the 27th at St. Leonards, Exeter, Liverpool, York, Harrogate, and Eccles; on the 28th at St. John's College, Camden Town, Harrogate, and St. Paul's Parsonage; on the 30th at Little Bridy; and on the 31st at Castleton, Wakefield, Stonyhurst, York, Thelwall, Harrogate, St. Paul's Parsonage, North Shields, and Wisbeach.*



ENGLAND :—*Meteorological Table, Quarter ended 30th Sept., 1863.*

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Range of Tem- perature in the Quarter.	Mean Monthly Range of Tem- perature.	Mean Daily Range of Tem- perature.	Mean Tem- perature of the Air.	Mean Degree of Hu- midity.
	in.	°	°	°	°	°	°	
Guernsey .....	29·612	74·5	47·0	27·5	21·2	9·8	53·7	83
Exeter .....	29·633	84·2	40·3	43·9	33·5	15·5	49·3	72
Ventnor .....	29·668	74·0	45·0	29·0	22·3	9·2	52·8	75
Barnstaple .....	29·677	86·0	37·5	48·5	35·9	15·9	51·6	78
Royal Observatory	29·592	86·0	35·0	51·0	41·0	20·9	50·7	74
Royston .....	29·621	86·6	36·8	49·8	38·6	21·0	48·6	72
Lampeter .....	29·569	83·0	—	—	—	—	51·9	85
Norwich .....	29·558	80·0	41·0	39·0	32·0	16·2	51·1	78
Diss (Norfolk) ...	—	85·0	38·0	47·0	39·2	20·1	49·5	71
Liverpool .....	29·591	74·9	43·3	31·6	21·7	9·9	49·7	77
Wakefield .....	29·514	85·2	34·5	40·7	41·7	19·5	51·8	84
York .....	29·499	78·8	38·6	40·2	32·8	14·9	50·0	82
Stonyhurst .....	29·552	82·0	40·5	41·5	32·5	18·0	50·5	82
North Shields ...	29·568	75·0	40·0	35·0	30·3	12·5	46·2	79
Alnwick .....	29·481	79·0	38·0	41·0	34·0	17·7	47·5	80

10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					Mean Amount of Cloud.	RAIN.	
	Mean estimated Strength.	Relative Proportion of					Number of Days on which it fell.	Amount collected.
		N.	E.	S.	W.			
								in.
Guernsey .....	1·5	8	4	8	10	3·5	34	10·4
Exeter .....	0·8	6	5	9	10	4·8	49	6·9
Ventnor .....	—	2	7	9	13	—	34	6·4
Barnstaple .....	1·2	6	3	11	11	4·1	45	10·8
Royal Observatory	—	4	3	10	14	6·3	30	5·9
Royston .....	—	5	2	7	16	5·8	40	4·7
Lampeter .....	1·6	7	2	8	10	6·9	42	18·0
Norwich .....	—	4	4	11	12	—	—	—
Diss (Norfolk) ...	—	4	3	13	10	5·3	24	3·7
Liverpool .....	0·2	8	2	8	14	—	52	9·2
Wakefield .....	1·7	—	—	—	—	5·8	47	7·7
York .....	0·7	6	4	6	15	7·9	39	15·7
Stonyhurst .....	—	3	5	7	15	—	—	7·6
North Shields ...	1·9	8	4	6	13	6·5	46	5·6
Alnwick .....	1·7	5	9	2	15	7·0	46	6·1

**No. II.—SCOTLAND.****MARRIAGES, BIRTHS, AND DEATHS IN THE QUARTER  
ENDED 30TH SEPTEMBER, 1863.**

This Return comprises the number of BIRTHS, DEATHS, and MARRIAGES entered on the registers of the 1,009 districts into which Scotland is divided for the purposes of registration during the quarter ending 30th September, 1863. From the returns received, it would appear that the births, but especially the deaths, had been much above the average of the corresponding quarter of the eight previous years, while the marriages had been the exact average.

**BIRTHS.**—26,594 births were registered in Scotland during the quarter ending 30th September, being in the annual proportion of 343 births in every 10,000 persons of the estimated population, or 1 birth to every 29 persons. This is a very high rate, and considerably above the average birth-rate of the corresponding quarter of the eight previous years, which was in the proportion of 332 births in every 10,000 persons of the population.

Of the 26,594 children whose births were registered during the quarter, 13,680 were males, and 12,914 females, being in the high proportion of 106 males for every 100 females.

The usual difference between the proportion of births in the town and country districts was observed during the quarter. Thus, in the 126 town districts (which embrace almost all the towns with populations of 2,000 and upwards), 15,087 births were registered, while in the 883 country districts (embracing the remainder of the population of Scotland), 11,507 births occurred; thus indicating an annual proportion of 368 births in every 10,000 persons in the town districts, but only 315 births in a like population in the country districts.

Of the 26,594 births, 23,945 were legitimate, and 2,649 illegitimate, being in the proportion of 9·9 per cent., or 1 birth in every 10 illegitimate. As usual, the proportion of illegitimate births was highest in the country districts; for while only 9·8 per cent. of the births were illegitimate in the town districts, 10·1 per cent. were illegitimate in the country districts. As usual, also, the northern and north-western divisions of Scotland furnished the smallest proportion of illegitimate births; the north-eastern and southern divisions the highest; for, while the former only yielded respectively 4·7 and 5·4 per cent. of the births as illegitimate, the illegitimate births constituted 15·2 and 14·4 per cent. of the births in the latter.

**DEATHS.**—16,354 deaths were registered in Scotland during the third quarter of 1863, being a larger number than any registered during the third quarter of the eight previous years. The mean death-rate of the corresponding quarter of the eight previous years was 181 deaths in every 10,000 persons, but 211 deaths in a like population during the third quarter of this year; so that the mortality during the quarter has been excessively high.

As usual, the deaths in the town districts were much more numerous in proportion to the population than those in the country districts. Thus, in the 126 town districts, 10,254 deaths were registered; but only 6,100 deaths in the country districts; thus indicating an annual proportion of 250 deaths in every 10,000 persons in the town districts, but only 167 deaths in a like population in the country districts.

Of the deaths, 5,665 occurred during July, 5,541 in August, and 5,148 in September; so that the daily deaths in Scotland amounted to 183 during July, 179 during August, and 171 during September.

**INCREASE OF THE POPULATION.**—As the births numbered 26,594, and the deaths 16,354, the natural increase of the population, by the excess of births over deaths, amounted to 10,240 persons during the quarter. From that number, how



ever, have to be deducted the number of persons who emigrated during the quarter. From a return furnished to the Registrar-General by the Emigration Commissioners, it appears that 58,320 persons emigrated from the ports of Great Britain and Ireland during the third quarter of the year. Of these 5,022 were ascertained to have been of Scottish origin; but to that number 636 must be added as the proportion of persons whose origin was not ascertained. The total number of Scottish emigrants would thus amount to 5,658 persons; which, deducted from the excess of births over deaths, would only leave 4,582 persons as the increase of the population during the quarter.

**MARRIAGES.**—4,889 marriages were registered in Scotland during the quarter, being in the annual proportion of 62 marriages in every 10,000 persons of the estimated population, or the exact average of the corresponding quarters of the eight previous years. This fact speaks well for the general prosperity of the country, especially as the previous or second quarter had a higher proportion than usual of marriages, which might have led us rather to expect a proportional diminution during the third quarter.

Like the births and deaths, the proportion of marriages was much higher in the town than in the country districts. Thus, in the 126 town districts 3,315 marriages were contracted during the quarter, but only 1,574 marriages in the 881 country districts, being in the proportion of 81 marriages in every 10,000 persons of the population in the town districts, but only 43 marriages in a like population in the country districts.

Of the marriages, 2,170 were contracted in July, 1,526 in August, and 1,193 in September.

**HEALTH OF THE POPULATION.**—The population has been very unhealthy during the quarter, and the mortality has been high above the mean of the corresponding quarters of the eight previous years. Small-pox has prevailed as an epidemic to a greater or lesser extent over every part of Scotland, and the number of deaths caused by it has been very great. It is to be hoped that the people are taking the full benefit of the recent Vaccination Act, seeing that it has been clearly proved that most of the victims of small-pox are those who have never been vaccinated, while it mutilates the countenance of those who escape death, besides frequently producing blindness and other diseases. The registrar of Walls, in Shetland, mentions a case which ought to act as a warning to those who neglect vaccination, and in especial to the parish of which he is registrar, viz., that in a former epidemic almost the whole inhabitants of Foula were swept off by small-pox. They neglected vaccination then, they neglect it still; for in Walls it is calculated that at least 1,000 persons are unvaccinated, and hardly one in Foula.

Scarlatina and measles have been rather more prevalent than usual, and have largely increased the mortality. Diphtheria is steadily increasing, and seems to have been more prevalent and fatal in the northern than in the southern half of Scotland. Continued fever in its varied forms has been rather more common than usual in certain localities, but does not appear to have assumed the epidemic type. There is no mention of any considerable increase of deaths from the usual autumnal bowel complaints, the mean temperature never having risen so high as to render these complaints more than usually prevalent or fatal. One or two deaths occur every year from the bites of the adder (or viper), the only poisonous snake in Scotland. A child fell a victim to poison of that snake at Kirkcowan, in Wigtownshire.

**WEATHER.**—Excepting during July, the weather during the quarter has been much colder and more rainy than usual; there has been a complete absence of the usual amount of autumnal heat, and the whole meteorological agencies have been most adverse to health. Though one very warm week occurred during July, and though, from the sky being more free from clouds, there were 52 hours more sunshine than usual during the month, yet the mean temperature of the month was  $0^{\circ}\cdot5$  below the average of former years. This result was produced by the much greater coldness of the nights, which the greater heat during the day could not counteract, so that a much greater daily range of temperature occurred than usual, viz., to the extent of  $16^{\circ}\cdot8$ , an agent most prejudicial to health. This circumstance at once accounts for the very high death-rate during July.

SCOTLAND:—MARRIAGES, BIRTHS, and DEATHS Registered in the Quarter ended 30th September, 1863.

1	2	3	4	5	6
DIVISIONS. (Scotland)	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
SCOTLAND.....Totals	19,639,377	3,062,294	4,889	26,594	16,354
I. Northern .....	2,261,622	130,422	99	899	410
II. North-Western .....	4,739,876	167,329	101	1,121	630
III. North-Eastern .....	2,429,594	366,783	504	3,293	1,592
IV. East Midland .....	2,790,492	523,822	717	4,267	2,593
V. West Midland .....	2,693,176	242,507	329	1,978	1,237
VI. South-Western .....	1,462,397	1,008,253	2,112	9,729	6,700
VII. South-Eastern .....	1,192,524	408,962	778	3,698	2,157
VIII. Southern .....	2,069,696	214,216	249	1,609	1,035

No. III.—GREAT BRITAIN.

SUMMARY of MARRIAGES, in the Quarter ended 30th June, 1863; and BIRTHS and DEATHS, in the Quarter ended 30th September, 1863.

COUNTRIES.	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
England and Wales.....	37,324,883	20,066,224	44,058	173,125	112,384
Scotland .....	19,639,377	3,062,294	5,557	26,594	16,354
GREAT BRITAIN.....	56,964,260	23,128,518	49,615	199,719	128,738



**Trade of United Kingdom, 1863-62-61.—Distribution of Exports from United Kingdom according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.**

Merchandise ( <i>excluding Gold and Silver</i> ), Imported from, and Exported to, the following Foreign Countries, &c. [000's omitted.]	First Six Months.					
	1863.		1862.		1861.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
<b>I.—FOREIGN COUNTRIES:</b>	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	5,146,	1,770,	4,773,	1,673,	4,718,	2,13,
Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium	11,544,	9,164,	10,231,	9,475,	10,809,	9,79,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	14,564,	7,589,	12,667,	7,152,	12,676,	6,24,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,914,	3,566,	2,121,	3,229,	3,232,	3,78,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	10,249,	4,538,	7,452,	2,787,	6,452,	2,70,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	197,	51,	206,	101,	204,	9,
Western Africa	561,	345,	648,	474,	419,	42,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands	26,	28,	—	51,	—	2,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	843,	424,	671,	750,	570,	1,07,
South Sea Islands	19,	83,	—	—	—	2,
China, including Hong Kong	8,496,	1,858,	7,136,	1,883,	5,642,	3,20,
United States of America	9,519,	7,004,	11,221,	6,450,	32,012,	5,43,
Mexico and Central America	769,	1,058,	461,	271,	271,	45,
Foreign West Indies and Hayti	2,444,	1,281,	1,865,	1,287,	1,728,	1,03,
South America (Northern), New Granada, Venezuela, and Ecuador	370,	784,	492,	448,	322,	73,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia	3,086,	1,155,	2,604,	814,	2,482,	1,30,
„ (Atlantic) Brazil, Uruguay, and Buenos Ayres	3,173,	2,475,	2,629,	2,530,	1,455,	3,50,
Whale Fisheries; Grnld., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	12,	6,	14,	9,	5,	,
<b>Total.—Foreign Countries</b>	72,932,	43,179,	65,191,	39,384,	82,997,	41,980,
<b>II.—BRITISH POSSESSIONS:</b>						
British India, Ceylon, and Singapore	16,461,	8,416,	10,314,	7,909,	7,722,	8,628,
Austral. Cols.—New South Wales and Victoria	2,285,	3,928,	2,451,	3,967,	2,462,	3,76,
„ „ So. Aus., W. Aus., Tasm., and N. Zea.	1,128,	1,510,	764,	1,159,	799,	1,070,
British North America	923,	1,839,	1,539,	1,475,	1,050,	1,698,
„ W. Indies with Btsh. Guiana & Honduras	3,550,	1,709,	3,318,	1,629,	2,577,	1,249,
Cape and Natal	835,	662,	592,	949,	494,	971,
Br. W. Co. of Af., Ascension and St. Helena	57,	175,	61,	207,	84,	162,
Mauritius	1,250,	215,	809,	256,	1,567,	289,
Channel Islands	300,	381,	345,	380,	327,	320,
<b>Total.—British Possessions</b>	26,789,	18,835,	20,193,	17,931,	16,082,	18,163,
<b>General Total</b> .....£	99,721,	62,014,	85,384,	57,315,	99,079,	60,143,

IMPORTS. — (United Kingdom.) — First Eight Months (*January — August*), 1863-62-61-60-59.—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

(First Eight Months.) [000's omitted.] FOREIGN ARTICLES IMPORTED.		1863.	1862.	1861.	1860.	1859.
		£	£	£	£	£
RAW MATLS.— <i>Textile.</i>	Cotton Wool ....	26,862,	11,655,	30,809,	28,941,	24,039,
	Wool (Sheep's)..	7,921,	7,333,	6,455,	7,797,	6,981,
	Silk .....	9,502,	9,764,	5,428,	6,243,	6,965,
	Flax .....	2,262,	2,664,	1,474,	2,256,	2,145,
	Hemp .....	1,796,	1,336,	909,	835,	1,372,
	Indigo .....	1,926,	2,151,	1,993,	1,893,	1,602,
		50,269,	34,903,	47,068,	47,965,	43,104,
	„ „ <i>Various.</i> Hides .....	1,868,	1,681,	1,404,	2,085,	1,884,
	Oils .....	2,512,	2,164,	1,937,	2,259,	1,917,
	Metals .....	2,345,	2,807,	2,106,	2,460,	2,215,
	Tallow .....	853,	995,	1,174,	1,586,	1,150,
	Timber.....	5,669,	4,908,	5,214,	4,513,	3,826,
		13,247,	12,555,	11,835,	12,903,	10,992,
„ „ <i>Agretil.</i>	Guano .....	2,022,	518,	1,395,	923,	1,545,
	Seeds .....	1,880,	1,413,	1,679,	1,850,	615,
		3,902,	1,931,	3,074,	2,773,	2,160,
TROPICAL, & C., PRODUCE.	Tea ... ..	6,670,	5,652,	4,219,	5,081,	3,741,
	Coffee .....	2,557,	2,379,	1,491,	1,428,	1,078,
	Sugar & Molasses	9,707,	8,892,	9,487,	9,005,	8,189,
	Tobacco .....	1,059,	673,	713,	463,	420,
	Rice .....	772,	1,266,	1,024,	473,	284,
	Fruits .....	153,	185,	354,	320,	167,
	Wine .....	2,874,	2,468,	2,829,	3,096,	1,582,
	Spirits .....	1,207,	1,078,	1,084,	1,420,	1,279,
		24,999,	22,593,	21,201,	21,286,	16,740,
FOOD .....	Grain and Meal..	17,605,	23,233,	24,693,	15,819,	12,118,
	Provisions .....	5,230,	5,090,	4,404,	3,693,	2,044,
		22,835,	28,323,	29,097,	19,512,	14,162,
Remainder of Enumerated Articles .....		2,806,	2,379,	2,312,	2,455,	2,134,
TOTAL ENUMERATED IMPORTS....		118,058,	102,684,	114,588,	106,894,	89,292,
Add for UNENUMERATED IMPORTS (say)		29,514,	25,671,	28,647,	26,723,	22,323,
TOTAL IMPORTS .....		147,572,	128,355,	143,235,	133,617,	111,615,



EXPORTS. — (United Kingdom.)—First Nine Months (*January—September*),  
1863-62-61-60-59.—*Declared Real Value, at Port of Shipment, of Articles of*  
*BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.*

(First Nine Months.) [000's omitted.] BRITISH PRODUCE, &c., EXPORTED.		1863.	1862.	1861.	1860.	1859.
		£	£	£	£	£
<b>MANFRS.—Textile.</b>	<b>Cotton Manufactures..</b>	27,192,	24,769,	28,683,	30,947,	28,957,
	„ Yarn .....	5,463,	5,297,	7,137,	7,378,	6,889,
	<b>Woollen Manufactures</b>	10,973,	9,698,	8,009,	9,433,	9,251,
	„ Yarn .....	3,702,	2,753,	2,656,	2,833,	2,008,
	<b>Silk Manufactures ...</b>	1,503,	1,547,	1,593,	1,617,	1,627,
	„ Yarn .....	215,	254,	214,	205,	157,
	<b>Linen Manufactures...</b>	4,555,	3,666,	2,942,	3,466,	3,456,
	„ Yarn .....	1,775,	1,353,	1,127,	3,169,	1,176,
		55,378,	49,337,	52,361,	57,328,	53,601,
	<b>„ Sewed. Apparel .....</b>	1,935,	1,609,	1,462,	1,528,	1,540,
	<b>Haberd. and Millnry.</b>	3,131,	2,689,	2,630,	3,113,	3,332,
		5,066,	4,298,	4,092,	4,641,	4,872,
<b>METALS .....</b>	<b>Hardware.....</b>	2,669,	2,391,	2,496,	2,768,	2,835,
	<b>Machinery .....</b>	3,031,	2,951,	2,120,	2,644,	2,739,
	<b>Iron .....</b>	9,676,	8,364,	7,909,	9,229,	9,813,
	<b>Copper and Brass.....</b>	3,072,	2,141,	1,743,	2,283,	1,927,
	<b>Lead and Tin .....</b>	2,138,	2,130,	1,359,	2,006,	2,045,
	<b>Coals and Culm .....</b>	2,768,	2,892,	2,745,	2,534,	2,582,
		23,354,	20,869,	19,372,	21,465,	21,941,
<b>Ceramic Manufcts.</b>	<b>Earthenware and Glass</b>	1,537,	1,359,	1,292,	1,595,	1,438,
<b>Indigenous Mnfrs.</b>	<b>Beer and Ale .....</b>	1,285,	1,124,	1,105,	1,571,	1,637,
	<b>Butter .....</b>	362,	262,	379,	465,	512,
	<b>Cheese .....</b>	106,	87,	95,	82,	94,
	<b>Candles .....</b>	156,	169,	215,	184,	136,
	<b>Salt .....</b>	235,	248,	297,	277,	200,
	<b>Spirits .....</b>	348,	368,	332,	230,	197,
	<b>Soda .....</b>	666,	682,	436,	753,	784,
		3,159,	2,940,	2,859,	3,562,	3,560,
<b>Various Manufcts.</b>	<b>Books, Printed.....</b>	323,	296,	330,	364,	343,
	<b>Furniture .....</b>	216,	183,	179,	166,	171,
	<b>Leather Manufactures</b>	1,674,	1,859,	1,545,	1,626,	1,441,
	<b>Soap .....</b>	193,	174,	170,	193,	158,
	<b>Plate and Watches ....</b>	344,	353,	331,	396,	359,
	<b>Stationery.....</b>	246,	199,	494,	572,	630,
		2,996,	3,064,	3,049,	3,317,	3,102,
	<b>Remainder of Enumerated Articles .....</b>	6,404,	6,181,	3,309,	2,951,	2,560,
	<b>Unenumerated Articles .....</b>	6,403,	5,624,	7,461,	6,865,	6,963,
		104,296,	93,672,	93,795,	101,724,	98,037,
<b>TOTAL EXPORTS</b>		104,296,	93,672,	93,795,	101,724,	98,037,

SHIPPING. — FOREIGN TRADE. — (United Kingdom.) — First Nine Months  
(January — September), 1863-62-61-60. — *Vessels Entered and Cleared with  
Cargoes, including repeated Voyages, but excluding Government Transports.*

(First Nine Months.)  ENTERED:—	1863.			1862.		1861.		1860.	
	Vessels.	Tonnage (000's omitted.)	Average Tonnage.	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)	Vessels.	Tonnage (000's omitted.)
<i>Vessels belonging to—</i>	No.	Tons.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Russia .....	301	91,	303	323	95,	307	91,	305	88,
Sweden .....	803	126,	157	714	117,	786	129,	815	126,
Norway .....	2,632	577,	219	2,360	483,	2,278	477,	1,978	430,
Denmark .....	2,305	218,	95	1,915	184,	1,821	176,	2,200	213,
Prussia and Ger. Sts. ....	2,992	716,	239	2,751	669,	2,777	637,	2,861	598,
Holland and Belgium ....	1,320	188,	143	1,279	177,	1,184	162,	1,231	170,
France .....	1,982	162,	82	1,415	118,	1,344	107,	1,377	115,
Spain and Portugal .....	284	87,	307	295	87,	354	84,	299	80,
Italy & other Eupn. Sts.	703	200,	285	611	172,	724	198,	732	206,
United States .....	563	566,	1,005	975	848,	1,572	1,342,	1,020	991,
All other States .....	11	3,	273	77	21,	10	3,	12	3,
United Kingdm. & } Depds. ....	13,896	2,936,	211	12,715	2,973,	13,157	3,406,	12,830	3,020,
	17,139	5,209,	304	15,840	4,700,	15,491	4,681,	14,596	4,206,
<i>Totals Entered</i>	31,035	8,145,	262	28,555	7,673,	28,648	8,087,	27,426	7,226,
CLEARED:—									
Russia ....	291	86,	297	308	91,	304	89,	284	83,
Sweden .....	789	121,	154	712	116,	799	132,	828	129,
Norway ....	1,451	252,	174	1,535	262,	1,519	247,	1,256	228,
Denmark .....	2,600	247,	95	2,347	225,	2,377	232,	2,613	251,
Prussia and Ger. Sts. ....	4,179	829,	198	4,122	792,	3,832	707,	3,651	666
Holland and Belgium ....	1,438	220,	153	1,743	257,	1,505	213,	1,493	237,
France .....	3,438	326,	95	3,768	363,	3,957	372,	2,858	303,
Spain and Portugal .....	290	94,	326	300	93,	317	84,	271	72,
Italy & other Eupn. Sts.	713	214,	300	622	80,	834	233,	806	232,
United States .....	515	531,	1,031	897	795,	1,225	1,071,	1,150	1,091,
All other States .....	19	6,	316	111	31,	20	6,	12	4,
United Kingdm. & } Depds. ....	15,723	2,926,	186	16,465	3,205,	16,689	3,386,	15,222	3,296,
	21,707	6,083,	280	21,434	5,759,	20,730	5,252,	18,732	4,960,
<i>Totals Cleared</i>	37,430	9,009,	241	37,899	8,964,	37,419	8,638,	33,954	8,256,



**SHIPPING CASUALTIES** *Reported in Lloyd's "REGISTER OF LOSSES," during*  
(Casualties to Foreign Coasters, or to

*Note.*—This information, in a different form, was originally published, at intervals, in "Lloyd's

	Wrecked.				Sunk.			Abandoned.			Missing.
	Totally.	Part Cargo Saved.	Whole, or nearly so, of Cargo Saved.	Total.	Lost.	Raised.	Total.	Lost.	Reco- vered.	Total.	
<b>July—</b>											
1854.....	31	2	—	33	13	—	13	7	7	14	1
'55.....	19	6	7	32	11	2	13	5	2	7	3
'56.....	35	7	7	49	12	—	12	4	4	8	4
'57.....	23	7	3	33	16	3	19	2	1	3	—
'58.....	39	8	1	48	28	4	32	9	1	10	2
'59.....	27	7	3	37	13	2	15	6	3	9	3
Average of } Six Years }	29·0	6·17	3·5	38·67	15·5	1·83	17·33	5·5	3·0	8·5	2·17
<b>August—</b>											
1854.....	25	4	1	30	13	1	14	7	6	13	3
'55.....	43	8	1	52	23	3	26	9	6	15	1
'56.....	28	12	2	42	17	3	20	8	3	11	3
'57.....	25	10	5	40	36	3	39	7	6	13	1
'58.....	32	8	3	43	22	2	24	13	3	16	2
'59.....	33	11	4	48	31	3	34	8	1	9	1
Average of } Six Years }	31·0	8·83	2·67	42·5	23·67	2·5	26·17	8·67	4·17	12·83	1·83
<b>September—</b>											
1854.....	23	3	1	27	16	2	18	12	2	14	2
'55.....	44	3	3	50	18	2	20	7	2	9	1
'56.....	35	7	5	47	29	7	36	6	4	10	—
'57.....	42	11	7	60	35	2	37	7	3	10	1
'58.....	30	5	5	40	21	—	21	7	1	8	3
'59.....	43	11	2	56	29	4	33	11	3	14	1
Average of } Six Years }	36·17	6·67	3·83	46·67	24·67	2·83	27·5	8·33	2·5	10·83	1·33
<b>September Quarter—</b>											
1854.....	79	9	2	90	42	3	45	26	1	41	6
'55.....	106	17	11	134	52	7	59	21	1	31	5
'56.....	98	26	14	138	58	10	68	18	11	29	7
'57.....	90	28	15	133	87	8	95	16	10	26	2
'58.....	101	21	9	131	71	6	77	29	5	34	7
'59.....	103	29	9	141	73	9	82	25	7	32	5
Average of } Six Years }	96·17	21·67	10·0	127·83	63·83	7·17	71·0	22·5	9·67	32·17	5·33

\* The majority of these ma

*the Months of JULY, AUGUST, and SEPTEMBER, from 1854 to 1859 inclusive.  
Vessels Unidentified, are not included.)*

List," but is now collated and tabulated by HENRY JEULA, Esq., Member of Lloyd's, F.S.S.

Stranded.				Condemned.			Touched the Ground, sustaining Trifling Damage.	Total.	
Subse- quent Fate not Reported.*	Got Off.	Got Off with Loss of part Cargo.	Total.	After Striking, &c.	From other Causes.	Total.			
21	47	2	70	3	3	6	2	139	July—
12	67	4	83	4	3	7	1	146	1854
52	74	2	128	3	3	6	1	208	'55
21	69	6	96	6	4	10	—	161	'56
31	77	7	115	1	8	9	—	216	'57
22	58	6	86	1	2	3	—	153	'58
									'59
26.5	65.33	4.5	96.33	3.0	3.83	6.83	.67	170.5	{ Average of Six Years
18	55	4	77	—	2	2	1	140	August—
28	49	4	81	1	2	3	1	179	1854
20	75	8	103	—	2	2	—	181	'55
31	82	7	120	3	4	7	—	220	'56
22	57	—	79	2	5	7	—	171	'57
18	69	10	97	4	8	12	—	201	'58
									'59
22.83	64.5	5.5	92.83	1.67	3.83	5.5	.33	182.0	{ Average of Six Years
23	71	2	96	1	3	4	—	161	September
19	77	10	106	—	1	1	—	187	1854
54	102	3	159	2	4	6	—	258	'55
47	89	4	140	3	3	6	—	254	'56
28	111	6	145	2	2	4	3	224	'57
27	104	5	136	4	4	8	—	248	'58
									'59
33.0	92.33	5.0	130.33	2.0	2.83	4.83	.5	222.0	{ Average of Six Years
62	173	8	243	4	8	12	3	440	September
59	193	18	270	5	6	11	2	512	Quarter—
126	251	13	390	5	9	14	1	647	1854
99	240	17	356	12	11	23	—	635	'55
81	245	13	339	5	15	20	3	611	'56
67	231	21	319	9	14	23	—	602	'57
									'58
									'59
82.33	222.17	15.0	319.5	6.67	10.5	17.17	1.5	574.5	{ Average of Six Years

be considered as "Wrecks."



**GOLD AND SILVER BULLION AND SPECIE. — IMPORTED AND EXPORTED. — (United Kingdom.) — Computed Real Value for the First Nine Months (January—September), 1863-62-61.**

[000's omitted.]

(First Nine Months.)	1863.		1862.		1861.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
<b>Imported from:—</b>	£	£	£	£	£	£
Australia .....	4,540,	—	4,650,	—	4,889,	—
So. Amca. and W. } Indies .....	3,136,	5,095,	1,226,	4,606,	1,139,	4,118,
United States and } Cal. ....	5,149,	616,	6,836,	83,	28,	26,
	12,825,	5,711,	12,712,	4,689,	6,056,	4,144,
France .....	185,	690,	89,	983,	2,471,	466,
Hanse Towns, Holl. } & Belg. ....	309,	1,211,	402,	1,735,	703,	456,
Prtgl., Spain, and } Gbrltr. ....	10,	66,	23,	91,	17,	120,
Mlta., Trky., and } Egypt .....	114,	3,	8,	13,	42,	4,
China .....	—	—	—	—	—	—
West Coast of Africa	47,	3,	80,	3,	73,	2,
All other Countries...	984,	118,	1,075,	69,	559,	31,
<i>Totals Imported</i>	14,474,	7,802,	14,389,	7,583,	9,921,	5,223,
<b>Exported to:—</b>						
France .....	2,293,	833,	3,900,	515,	964,	908,
Hanse Towns, Holl. } & Belg. ....	1,023,	703,	155,	501,	14,	701,
Prtgl., Spain, and } Gbrltr. ....	1,574,	3,	1,872,	7,	674,	3,
	4,890,	1,539,	5,927,	1,023,	1,652,	1,612,
Ind. and China (viâ } Egypt) .....	1,608,	6,161,	—	6,534,	581,	5,708,
Danish West Indies....	—	—	—	—	35,	33,
United States .....	35,	10,	36,	1,	7,037,	48,
South Africa .....	—	5,	—	—	85,	—
Mauritius .....	—	—	—	—	—	2,
Brazil .....	1,234,	50,	227,	19,	18,	119,
All other Countries....	3,213,	119,	5,010,	1,024,	749,	80,
<i>Totals Exported</i>	10,980,	7,884,	11,201,	8,601,	10,157,	7,602,
<b>Excess of Imports ....</b>	3,493,	—	3,188,	—	—	—
„ Exports ....	—	82,	—	1,018,	236,	2,379,

## REVENUE.—(UNITED KINGDOM.)—30TH SEPT., 1863-62-61-60.

*Net Produce in YEARS and QUARTERS ended 31ST SEPT., 1863-62-61-60.*

[000's omitted.]

QUARTERS, ended 30th Sept.	1863.	1862.	1863.		Corresponding Quarters.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	5,872,	6,201,	329,	—	5,982,	5,888,
Excise .....	3,922,	3,604,	—	318,	4,221,	5,089,
Stamps .....	2,191,	2,180,	—	11,	2,013,	2,053,
Taxes .....	176,	166,	—	10,	160,	166,
Post Office .....	905,	895,	—	10,	870,	800,
Property Tax .....	13,066,	13,046,	329,	349,	13,246,	13,996,
	866,	974,	108,	—	994,	2,281,
Crown Lands .....	13,932,	14,020,	437,	349,	14,237,	16,277,
	68,	67,	—	1,	66,	65,
Miscellaneous .....	411,	513,	102,	—	298,	316,
<i>Totals .....</i>	14,411,	14,600,	539,	350,	14,601,	16,658,
			NET DECR. £189,479			

YEARS, ended 30th Sept.	1863.	1862.	1863.		Corresponding Years.	
			Less.	More.	1861.	1860.
	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
Customs .....	23,771,	23,863,	92,	—	23,488,	23,396,
Excise .....	16,992,	17,430,	438,	—	18,624,	20,070,
Stamps.....	9,146,	8,824,	—	322,	8,426,	8,267,
Taxes .....	3,193,	3,160,	—	33,	3,130,	3,257,
Post Office .....	3,760,	3,560,	—	200,	3,470,	3,370,
Property Tax .....	56,862,	56,837,	530,	555,	57,138,	58,360,
	10,605,	10,532,	—	73,	11,133,	10,310,
Crown Lands .....	67,467,	67,369,	530,	628,	68,271,	68,670,
	301,	296,	—	5,	292,	290,
Miscellaneous .....	2,725,	2,019,	—	706,	1,243,	1,850,
<i>Totals .....</i>	70,493,	69,684,	530,	1,339,	69,806,	70,810,
			NET INCR. £808,842			



## REVENUE.—UNITED KINGDOM.—QUARTER ENDED 30TH SEPT., 1863.

*An Account showing the REVENUE and other RECEIPTS of the QUARTER ended 30th September, 1863 ; the APPLICATION of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.*

## Received:—

Surplus Balance beyond the Charge of the <i>Consolidated Fund</i> for the Quarter ended 30th June, 1863, viz.:—	£
Great Britain .....	—
Ireland .....	£971,218
	971,218
Income received in the Quarter ended 30th September, 1863, as shown on preceding page .....	14,411,504
Amount raised per Act 25 and 26 Victoria, cap. 78, on account of Fortifications, &c. ....	450,000
Amount received in the Quarter ended 30th September, 1863, in repayment of Advances for Public Works, &c. ....	338,086
	£16,170,808
Balance, being the Deficiency on 30th September, 1863, upon the charge of the <i>Consolidated Fund</i> in Great Britain, to meet the Dividends and other charges payable in the Quarter to 31st December, 1863, and for which the Exchequer Bills (Deficiency) will be issued in that Quarter .....	2,273,640
	£18,444,448

## Paid:—

Amount applied out of the Income for the Quarter ended 30th September, 1863, in Redemption of the Exchequer Bills (Deficiency), for the Quarter ended 30th June, 1863 .....	£
	1,076,065
Amount applied out of the Income to <i>Supply Services</i> in the Quarter ended 30th September, 1863 .....	9,466,121
Charge of the <i>Consolidated Fund</i> for the Quarter ended 30th September, 1863, viz.:—	
Interest of the Permanent Debt .....	£5,499,166
Terminable Debt .....	729,572
Interest of Exchequer Bills .....	84,601
„ Deficiency „ .....	—
The Civil List .....	101,307
Other Charges on Consolidated Fund .....	676,842
Advances for Public Works, &c. ....	63,378
Sinking Fund .....	289,816
	7,444,682
<i>Surplus Balance</i> in Ireland beyond the Charge of the <i>Consolidated Fund</i> in Ireland for the Quarter ended 30th September, 1863 .....	457,580
	£18,444,448

**CORN.—Gazette Average Prices (ENGLAND AND WALES), Third Quarter of 1863.**

[This Table is communicated by H. F. JADIS, ESQ., Comptroller of Corn Returns.]

Weeks ended on a Saturday 1863.		Weekly Average. (Per Impl. Quarter.)					
		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
July	4 .....	46 11	30 9	23 11	32 11	39 6	38 —
"	11 .....	46 10	30 10	23 6	34 5	40 2	39 —
"	18 .....	46 7	28 10	22 6	32 9	40 —	37 1
"	25 .....	45 11	29 10	22 9	32 8	39 3	35 11
Average for July ....		46 6	30 —	23 2	33 2	39 8	37 10
August	1 .....	45 11	31 —	23 —	37 11	39 11	36 3
"	8 .....	46 3	31 6	23 —	31 6	38 8	34 9
"	15 .....	45 11	31 4	23 7	36 4	40 7	35 7
"	22 .....	46 5	31 1	23 —	33 2	40 4	34 9
"	29 .....	45 9	33 10	22 8	33 9	39 6	35 9
Average for August ..		46 —	31 9	23 —	34 6	39 9	35 5
Sept.	5 .....	44 2	34 8	22 —	32 11	38 10	37 2
"	12 .....	44 1	34 7	21 8	31 —	39 10	35 10
"	19 .....	44 9	35 2	20 9	32 7	39 —	36 9
"	26 .....	43 9	35 9	20 2	32 1	38 11	37 5
Average for September ..		44 2	35 —	21 1	32 1	39 1	36 9
Average for the Quarter ..		45 7	32 2	22 6	33 4	39 6	36 5

**RAILWAYS.—PRICES, July—Sept.;—and TRAFFIC, Jan.—Sept., 1863.**

Total Capital Ex- ended Mins.	Railway.	For the (£100). Price on			Miles Open.		Total Traffic first 39 Weeks. (unit 000's omitted.)		Traffic pr. Mile pr. Wk. 39 Weeks.		Dividends per Cent. for Half Years.		
		2nd Sept.	1st Aug.	2nd July.	'63.	'62.	'63.	'62.	'63.	'62.	30 Jun. '63.	31 Dec. '62.	30 Jun. '62.
£					No.	No.	£	£	£	£	s. d.	s. d.	s. d.
48,0	Lond. & N. Westn.	101	102 <sup>3</sup> / <sub>8</sub>	102 <sup>3</sup> / <sub>8</sub>	1,204	1,165	3,654,	3,510,	77	67	42 6	55 —	37 6
41,6	Great Western ....	67 <sup>1</sup> / <sub>4</sub>	67 <sup>1</sup> / <sub>4</sub>	65 <sup>7</sup> / <sub>8</sub>	1,056	1,035	2,299,	2,273,	58	58	20 —	30 —	5 —
14,9	" Northern ....	125	128	128 <sup>1</sup> / <sub>4</sub>	351	351	1,097,	1,075,	85	81	42 6	85 —	45 —
20,2	" Eastern ....	50 <sup>7</sup> / <sub>8</sub>	53 <sup>5</sup> / <sub>8</sub>	53	663	644	1,130,	1,096,	45	44	12 6	25 —	20 —
10,7	Brighton .....	114	117 <sup>1</sup> / <sub>2</sub>	119	261	341	745,	751,	71	79	50 —	70 —	50 —
14,7	South-Eastern ...	93 <sup>1</sup> / <sub>8</sub>	92 <sup>3</sup> / <sub>8</sub>	91 <sup>7</sup> / <sub>8</sub>	306	306	886,	888,	67	68	45 —	60 —	42 6
14,3	" Western ...	102 <sup>1</sup> / <sub>4</sub>	106 <sup>1</sup> / <sub>4</sub>	106	450	400	869,	796,	45	47	45 —	60 —	40 —
64,4		93 <sup>1</sup> / <sub>4</sub>	95 <sup>1</sup> / <sub>4</sub>	95 <sup>1</sup> / <sub>4</sub>	4,292	4,142	10,680,	10,389,	64	63	36 9	55 —	34 3
22,4	Midland.....	127	129	129	641	614	1,607,	1,531,	65	50	57 6	65 —	55 —
19,6	Lanesh. and York.	113 <sup>3</sup> / <sub>8</sub>	114 <sup>3</sup> / <sub>8</sub>	112 <sup>1</sup> / <sub>2</sub>	395	395	1,358,	1,281,	86	82	42 6	40 —	37 6
12,3	Sheffield and Man.	43 <sup>7</sup> / <sub>8</sub>	45	46 <sup>1</sup> / <sub>8</sub>	239	239	590,	544,	64	58	—	—	—
30,8	North-Eastern ...	101 <sup>3</sup> / <sub>8</sub>	103 <sup>1</sup> / <sub>4</sub>	102 <sup>7</sup> / <sub>8</sub>	1,095	1,077	1,794,	1,688,	47	47	42 6	50 —	42 6
85,1		96 <sup>3</sup> / <sub>8</sub>	96 <sup>7</sup> / <sub>8</sub>	97 <sup>5</sup> / <sub>8</sub>	2,370	2,326	5,349,	5,044,	65	57	47 6	51 8	45 —
9,1	Caledonian .....	121 <sup>5</sup> / <sub>8</sub>	121 <sup>3</sup> / <sub>4</sub>	118 <sup>1</sup> / <sub>2</sub>	234	234	650,	614,	71	66	52 6	60 —	50 —
5,4	Gt. S. & Wn. Irld.	100	102	103	354	329	320,	315,	25	25	42 6	50 —	50 —
64,2	Gen. aver. ....	96 <sup>7</sup> / <sub>8</sub>	98 <sup>3</sup> / <sub>8</sub>	98 <sup>1</sup> / <sub>4</sub>	7,251	7,031	16,999,	16,362,	62	59	38 —	50 —	35 9

Consols.—Money Prices 1st Sept., 93<sup>1</sup>/<sub>2</sub> to 93<sup>1</sup>/<sub>4</sub>,—1st August, 92<sup>7</sup>/<sub>8</sub> to 93<sup>1</sup>/<sub>8</sub>,—1st July, 92, 92<sup>1</sup>/<sub>4</sub>.

Exchequer Bills. ,, 1s. d. to 2s. pm. ,, 2s. p. ,, 4s. d. to par.



## BANK OF ENGLAND.—WEEKLY RETURN.

*Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the THIRD QUARTER (July—Sept.) of 1863.*

[0,000's omitted.]

1					6		7
ISSUE DEPARTMENT.					COLLATERAL COLUMNS.		
Liabilities.		Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	* Minimum Rates of Discount at Bank of England.	
Notes Issued.	DATES. (Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.			
£ Mlms.	1863.	£ Mlms.	£ Mlms.	£ Mlms.	£ Mlms.	1863. Per ann. 21 May 4 p. ct.	
28,87	July 1 ....	11,02	3,63	14,22	21,14		
28,61	„ 8 ....	11,02	3,63	13,96	21,36		
28,54	„ 15 ....	11,02	3,63	13,89	21,54		
28,42	„ 22 ....	11,02	3,63	13,77	21,61		
28,56	„ 29 ....	11,02	3,63	13,91	21,19		
28,68	Aug. 5 ....	11,02	3,63	14,03	21,68		
28,82	„ 12 ....	11,02	3,63	14,17	21,26		
28,90	„ 19 ....	11,02	3,63	14,25	21,32		
29,13	„ 26 ....	11,02	3,63	14,48	20,99		
29,38	Sept. 2 ....	11,02	3,63	14,73	21,19		
29,19	„ 9 ....	11,02	3,63	14,53	20,93		
29,33	„ 16 ....	11,02	3,63	14,68	20,77		
29,30	„ 23 ....	11,02	3,63	14,65	20,75		
29,23	„ 30 ....	11,02	3,63	14,56	21,52		

## BANKING DEPARTMENT.

8		9	10		11	12	13	14	15	16	17	18	
Liabilities.						Assets.							Totals of Liabilities and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.	DATES.  (Wdnsdys.)	Securities.		Reserve.					
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.				
£	£	£	£			£	£	£	£	£	£		
Mlms.	Mlms.	Mlms.	Mlms.	Mlms.	1863.	Mlms.	Mlms.	Mlms.	Mlms.	Mlms.			
14,55	3,20	10,36	16,27	,60	July 1	11,05	25,34	7,73	,85	44,98			
14,55	3,24	5,59	18,60	,66	„ 8	11,05	23,50	7,23	,86	42,64			
14,55	3,28	4,95	16,38	,66	„ 15	11,05	20,90	7,00	,86	39,82			
14,55	3,30	5,39	14,66	,63	„ 22	11,00	19,87	6,81	,85	38,55			
14,55	3,32	5,63	14,44	,63	„ 29	11,00	19,37	7,37	,83	38,58			
14,55	3,42	5,58	13,79	,67	Aug. 5	11,03	19,15	7,00	,82	38,01			
14,55	3,43	5,75	13,58	,68	„ 12	11,09	18,47	7,56	,87	37,99			
14,55	3,45	6,13	13,00	,68	„ 19	11,09	18,32	7,58	,83	37,82			
14,55	3,41	6,71	12,81	,70	„ 26	11,09	18,13	8,14	,83	38,19			
14,55	3,67	6,82	13,26	,73	Sept. 2	11,09	18,99	8,19	,76	39,04			
14,55	3,71	7,00	12,90	,72	„ 9	11,09	18,73	8,26	,81	38,89			
14,55	3,72	7,37	13,48	,71	„ 16	11,09	19,41	8,56	,78	39,84			
14,55	3,72	8,29	12,86	,76	„ 23	11,14	19,72	8,55	,78	40,19			
14,55	3,73	9,27	13,72	,79	„ 30	11,14	23,51	7,71	,70	38,15			

## CIRCULATION.—COUNTRY BANKS.

*Average Amount of Promissory Notes in Circulation in ENGLAND and WALES, on Saturday, in each Week during the THIRD QUARTER (July—September) of 1863; and in SCOTLAND and IRELAND, at the Three Dates, as under.*

ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES.	Private Banks. (Fixed Issues, 4·27.)	Joint Stock Banks. (Fixed Issues, 3·30.)	TOTAL. (Fixed Issues, 7·57.)	Three Weeks, ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2·75.)	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 6·35.)
1863.	£ Mlns.	£ Mlns.	£ Mlns.	1863.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
July 4	3,09	2,83	5,93	July 25	1,56	2,60	4,16	2,66	2,33	4,99
„ 11	3,11	2,83	5,95							
„ 18	3,08	2,80	5,88							
„ 25	3,02	2,71	5,80							
Aug. 1	3,01	2,75	5,76	Aug. 22	1,53	2,58	4,11	2,60	2,27	4,88
„ 8	3,00	2,76	5,77							
„ 15	2,98	2,77	5,75							
„ 22	2,96	2,78	5,74							
„ 29	2,97	2,78	5,75							
Sept. 5	3,00	2,79	5,79	Sept. 19	1,18	2,62	4,10	2,64	2,40	5,04
„ 12	3,04	2,82	5,87							
„ 19	3,09	2,87	5,96							

FOREIGN EXCHANGES.—*Quotations as under, LONDON on Paris, Hamburg & Calcutta;—and New York, Calcutta, Hong Kong & Sydney, on LONDON—with collateral cols.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14
DATES.	Paris.				Hamburg.			New York.	Calcutta.		Hong Kong.	Sydney.	Standard Silver in bars in London.
	London on Paris. 3 m. d.	Bullion as arbitrated.		Prem. or Dis. on Gold per mille.	London on Hambg. 3 m. d.	Bullion as arbitrated.			India Council 60 d. s.	At Calcutta on London. 6 m. s.			
		Agnst. Engd.	For Engd.			Agnst. Engd.	For Engd.						
1863.		pr. ct.	pr. ct.			pr. ct.	pr. ct.	pr. ct.	d.	d.	d.	pr. ct.	d.
July 4 ..	25·52	—	0·2	½ pm	13·8½	—	0·2	156½	23⅝	24⅝	58½	1 p.	61
„ 18 ..	·57	—	0·3	„	·8¾	—	0·3	160½	„	„	„	„	61¼
Aug. 8 ..	·60	—	0·3	1 pm	„	—	—	139	„	24½	„	„	61⅛
„ 22 ..	„	—	0·4	„	„	—	0·7	139½	„	24⅝	„	„	„
Sept. 5 ..	·57	—	0·3	1½ „	·9	—	„	138	„	„	„	„	61¼
„ 19 ..	„	—	„	½ „	·8¾	—	0·8	145	23¾	„	57¾	„	„





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